More Mesa Biological Resource Study

Prepared for:

County of Santa Barbara
Planning and Development

Prepared by:

Rincon Consultants, Inc

Finalized
December 2010

MORE MESA
BIOLOGICAL RESOURCES STUDY

Prepared for:

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SECTION 1 - INTRODUCTION

1.1 PURPOSE

The intent of the biological studies presented herein is to determine the type and extent of sensitive and/or ecologically significant coastal terrace biological resources and the changes that may have occurred over the past few decades to these resources on the coastal 265-acre property commonly known as More Mesa, in Santa Barbara County, California.

The site's resources and biological sensitivity have been previously described and regulated under policies in the County of Santa Barbara's Local Coastal Program (LCP), which includes both the 1980 Coastal Land Use Plan (CLUP) and the Coastal Zoning Ordinance (Updated August 2008), and the 1993 Goleta Community Plan (GCP). Specifically, this Biological Resources Study (BRS) is mandated under Development Standard LUDS-GV-1.2 of the GCP, which requires that a study "review the extent of the Environmentally Sensitive Habitat (ESH) designation for the site, the extent of developable area relative to biological resources, and the site's relative importance to the related open lands within the Atascadero Creek ecosystem" prior to accepting any increase in developable area or number of allowable units over 70 to 100 on More Mesa. Further, the measure requires that the study provide recommendations to protect said areas from adverse effects of development, including identification of areas not to be disturbed and appropriate buffers and other methods to avoid their disturbance.

To determine the extent and nature of ESH at the site, its local importance, and to provide recommendations regarding the protection of the site's resources, an extensive study of the site's biological resources was conducted between April 2008 and July 2009. This effort included specialized studies of listed and special-status species, unique coastal resources, and raptors, especially the white-tailed kite. In addition, this effort included a review of past studies and reports prepared for the site, surrounding areas, and associated focal species. The general and focused field surveys conducted within the site included:

- *Floristic Inventory and Mapping of Special-status Plant Species (Vascular Plants)*
- *Plant Community Mapping*
- *Wildlife Habitat Mapping*
- *Jurisdictional Delineation of Waters of the U.S. and State of California*
- *General Avian and Raptor Surveys and Inventory*
- *Small Mammal Trapping and Inventory*
- *Bat Detection Surveys and Inventory*
- *Reptile/Amphibian Trapping and Inventory*
- *Invertebrate Inventory and Winter Roost Surveys for Monarch Butterflies*
- *White-tailed Kite Foraging, Breeding and Roosting Surveys*
- *Special-status Species Focused Surveys*

Data collected over the course of the BRS were modeled using geographical analysis tools in ArcGIS Spatial Analyst to interpret spatial data, apply sensitivity rankings, and ultimately quantify sensitivity to determine those areas that meet the definition of ESH, as defined by the California Coastal Commission and the County of Santa Barbara. From this scientific biological basis, those areas that could be considered for open space as compared to those that may be suitable for development based on the least potential for causing impacts to the biological resources of concern were determined. The model results were then used to provide policy/mitigation recommendations to protect sensitive biological resources and inform future decisions regarding the development potential of the property. Please note that when the County of Santa Barbara Board of Supervisors considers future land use options for the property that biological resources are just one of many factors that would be analyzed.

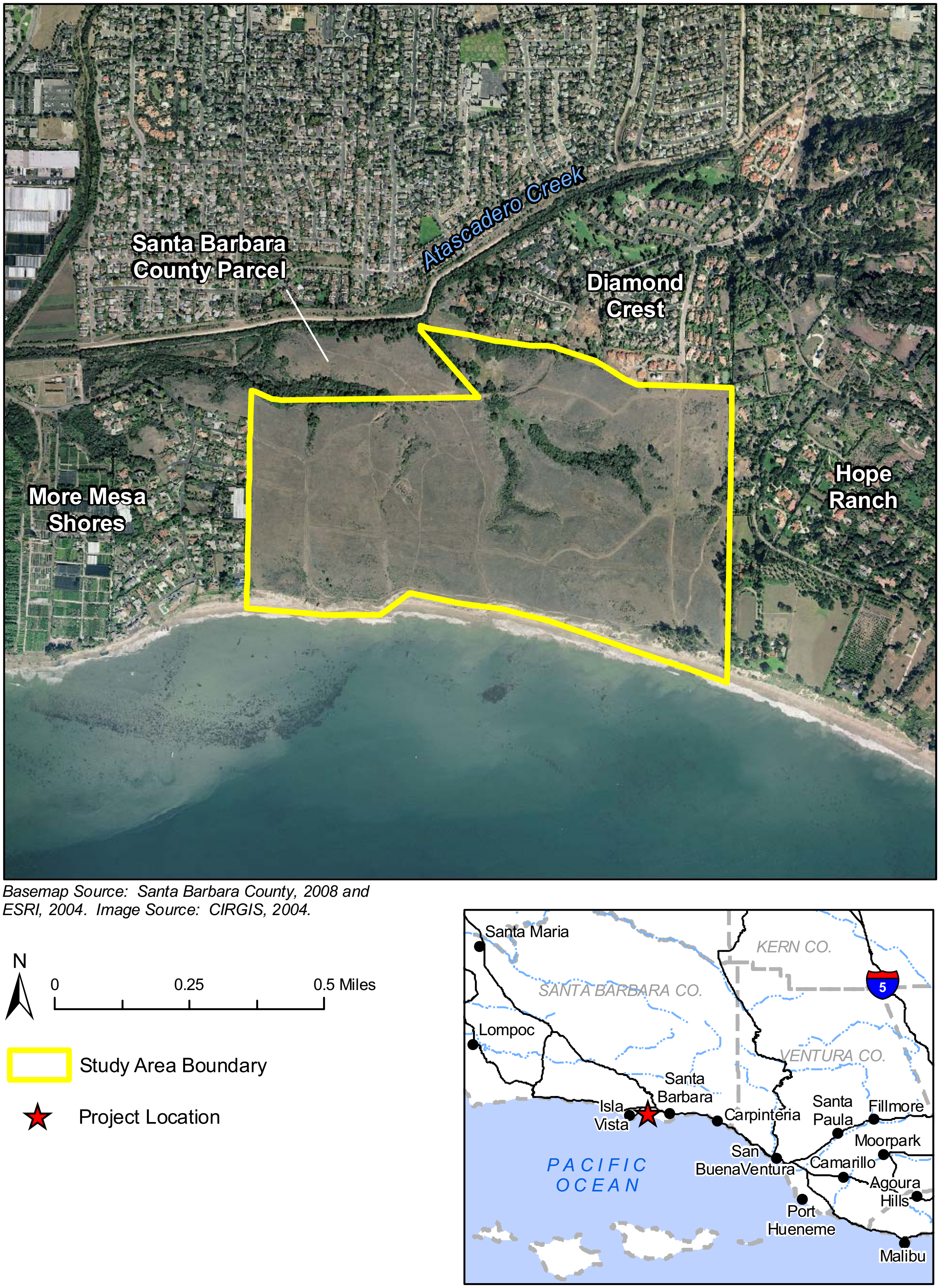
Given the spatial and temporal fluctuations in ecological and biological patterns of diversity, abundance, and distribution, the determination of ESH boundaries cannot be based solely on a single-year's snapshot of site conditions and, therefore, must consider current and historic conditions and uses of the site. As part of this study, applicable past studies and local expert opinions regarding comparable species diversity, composition, abundance, and long term utilization at the site and general ecosystem health were incorporated. Literature sources considered ranged from regional- to parcel-level resource studies, for the project, adjacent, and nearby sensitive or connected resource sites. Please refer to the References Section for a complete list of works cited.

This comprehensive BRS has been conducted by Rincon Consultants, Inc. (Rincon) under contract with the County of Santa Barbara (County) and in cooperation with the California Department of Fish and Game and the California Coastal Commission. It was funded through the County by the applicant, Sinclair Real Estate Company, and was conducted in compliance with applicable County, state and federal laws, regulations, procedures and guidelines. As part of the Administrative Draft effort, local expert and community input was solicited through personal communications, email correspondence and meetings. Further input will be solicited through public hearings, draft document review and written comment, scheduled as the next phase of this effort.

1.2 LOCATION

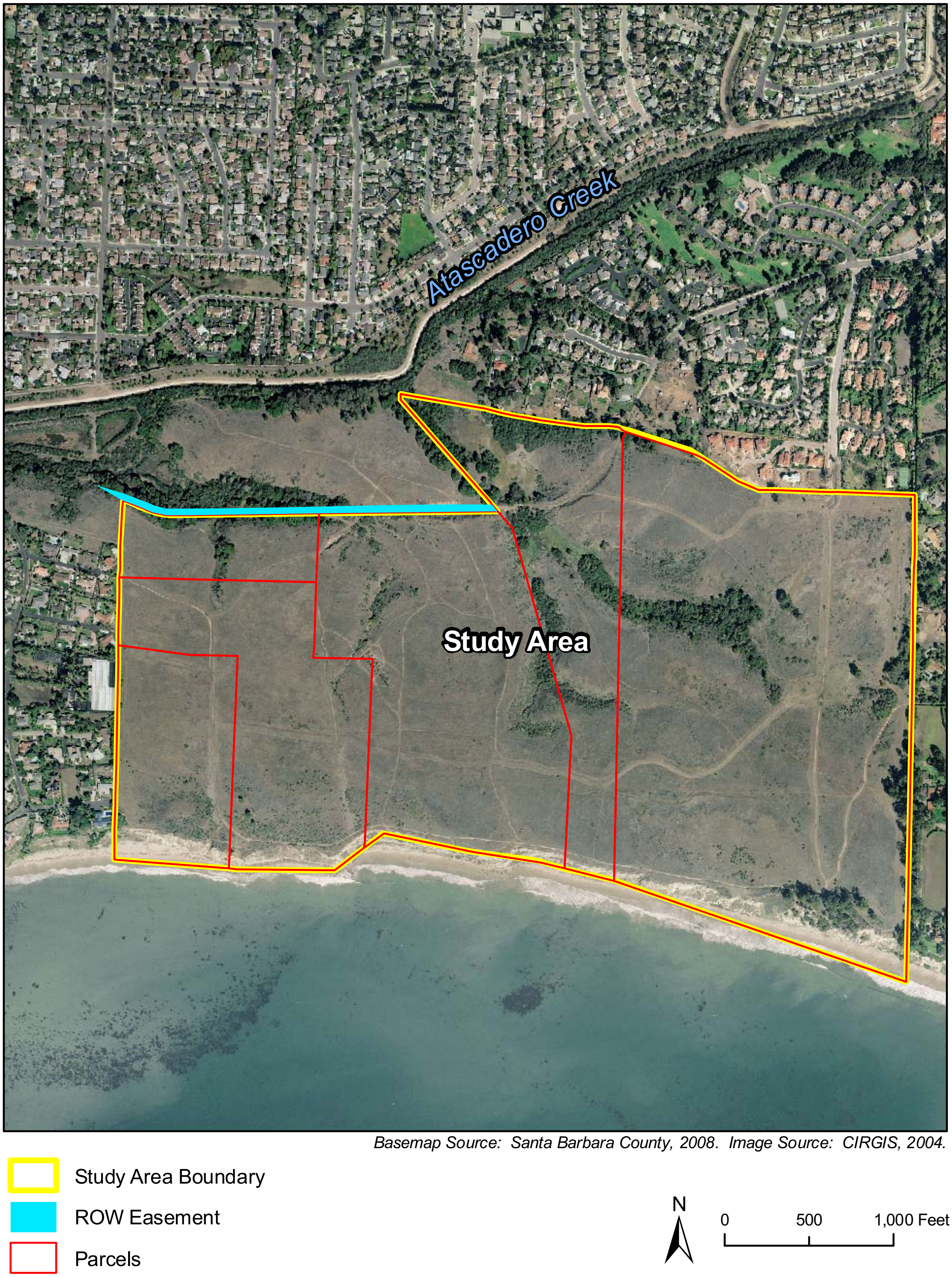
The primary study area, More Mesa, comprises approximately 265 acres of coastal marine terrace located along the County coastline between the cities of Santa Barbara and Goleta (Figure 1-1). Residential land use is located to the east, west, and north of the site. The low-density, estate style, residential community of Hope Ranch is located to the east and is considered semi-rural in character. The More-Mesa Shores residential community along Orchid Drive to the west consists of single-family homes in addition to several nurseries. To the west of this small residential community, agricultural and nursery land uses extend west to Goleta Slough. To the north of the site, 35 acres of open lands owned by the County form the western half of the property's northern boundary. This County property connects More Mesa to Atascadero Creek, beyond which extends the Goleta Valley and urban land uses between the cities of Goleta and Santa Barbara. The eastern half of the northern boundary abuts several residences and the residential communities of Diamond Crest, Las Brisas, and Vista la Cumbre, which extend north to the Hidden Oaks Country Club and Atascadero Creek. The southern extent of the site is bounded by the Pacific Ocean.

The primary More Mesa study area includes six parcels: Assessor's Parcel Numbers 065-320-001, -002, -007, -008, -009, and -010 (Figure 1-2). Field studies were generally focused on this core area; however, certain study efforts extended to adjacent parcels to investigate several specific resources including, but not limited to white-tailed kite, California red-legged frog, and wildlife movement corridors. Background materials and previous studies from throughout the Goleta Valley were compiled and considered during the analytical efforts of the study. For simplicity purposes; however, this report refers to the study area as that of the six parcels listed in Figure 1-2. Most general studies were expanded to incorporate the County parcel at the northern project boundary and a 2.1 acre right-of-way easement that extends between the County parcel and the primary study area. The right-of-way easement is shown in Figure 1-2 only, throughout the remainder of the document the easement is incorporated into the County parcel for graphics and discussion purposes. Again, findings within the County parcel and surrounding local or regional observations are provided textually throughout the report, but the primary study area is considered to be More Mesa.



Project Location

Figure 1-1



Project Site

Figure 1-2

1.3 CURRENT LAND USE DESIGNATION

More Mesa lies within the coastal boundary established under the California Coastal Act and its land use is regulated through the County's LCP. The GCP provides the latest land use designations and specific development standards and policies regarding the site in addition to those contained in the 1980 CLUP. Under the 1993 Goleta Community Plan, the entire study site is designated Planned Development-70 (PD-70) and zoned PRD-70, which allows for the development of a maximum of 70 dwelling units. The GCP also designated 225 acres of the site as Environmentally Sensitive Habitat (ESH) and unsuitable for development. Thus, development would be limited to the remaining 40 acres along the eastern and north-eastern boundary of the property (Figure 1-3). Currently the County is proceeding to update the 1993 GCP in collaboration with the Goleta Valley Planning Advisory Committee. This effort will modernize the GCP by incorporating the community's vision established by the Goleta Visioning Committee in 2006 and update the planning goals and objectives.

The current zoning and designation of ESH for the site was based largely on the results and recommendations of a comprehensive analysis of the biological sensitivity of the site, A Biological Evaluation of More Mesa (UCSB, 1982). The study was conducted between 1981 and 1982 by the Environmental Research Team of the University of California at Santa Barbara (UCSB) Herbarium, Department of Biological Sciences. The study evaluated the vegetation, habitats, bird, mammal, reptile and amphibian species found within the site. In addition, a sensitivity analysis relating the results of those studies to the physiographic features of the site was provided to delineate the relative sensitivity of areas within the site. Prior to the 1982 study, only limited or focused biological studies had been conducted at or adjacent to the site. As previously stated, the intent of the studies herein is to determine the extent of important coastal biological resources, ESH, and changes that may have occurred at the site since the 1982 study.

1.4 ENVIRONMENTAL SETTING

The following provides an overview of the environmental conditions, including geology, soils, climate, ecology, and land use of the study site and the South Coast and Atascadero Creek ecosystem.

1.4.1 SOUTH COAST

The project site is located near the northern extent of the Southern California Coast, an ecological subregion that extends from the coastal, northern County boundary south to the Mexico Border and east to the Transverse and Peninsular Ranges. Specifically, the study site lies within the Santa Ynez – Sulphur Mountains subsection (Figure 1-4), an ecological unit that extends from the Santa Ynez rivermouth, in northern Santa Barbara County, south and east to the Sulphur Mountains in northern Ventura County (Goudy and Miles, 1998).

Geology

The Santa Ynez – Sulphur Mountains ecological unit, like the larger southern California Coast, is generally defined by its topography (Figure 1-5) and geography. The Transverse Mountain Ranges, which include the Santa Ynez Mountains, trend in an east-west direction separating the south and coastal plains of the County from the mountainous interior. The mountains and hills throughout the County have been raised by compressive forces and are underlain by numerous active and potentially active folds and faults (Figure 1-5). The Santa Ynez Mountains near the study area were uplifted by the southward tilt of the Santa Ynez fault that dips under the mountains from the north (Dibblee Jr., 1950). The Santa Barbara coastal plain area is also dominated by the

Santa Barbara fold and fault belt, an east-west-trending zone of Quaternary, partly active folds and blind and exposed reverse and thrust faults, and in some areas, such as the study site, small areas of dissected Quaternary marine terraces (Minor et al., 2002).

Soils

The soils within the lower lying areas and floodplains of this region are commonly unconsolidated alluvial deposits of silt and sand. At higher elevations and along slopes and hillsides older shales, sand- and siltstones are exposed (Dibblee 1987; Ferren and Thomas 1995). Most, but not all, of the soils are leached free of carbonates and are generally well drained.

Climate

Within the Santa Ynez Mountains the highest elevation is Divide Peak at 4707 feet (1434 m), north and east of the City of Carpinteria (Figure 1-5). La Cumbre Peak reaches 3985 feet (1214 m) above the City of Santa Barbara and the Santa Ynez Peak reaches 4298 feet (1310 m) above the Gaviota Coast, north and west of the study area. The presence and proximity of these large physical features of the Santa Ynez Mountains adjacent to the Pacific Ocean influence climatic conditions by forcing moving air upwards, and causing an increase in precipitation along the coastal plain. Annual precipitation along the coast ranges from 10 to 25 inches and temperatures range from 45 to 65 degrees Fahrenheit (°F). Summer daytime temperatures are also often modified by morning fog and sea breezes and the growing season lasts 250 to 360 days (Goudy and Miles, 1998). Large and high velocity stream flows periodically occur during major storm events.

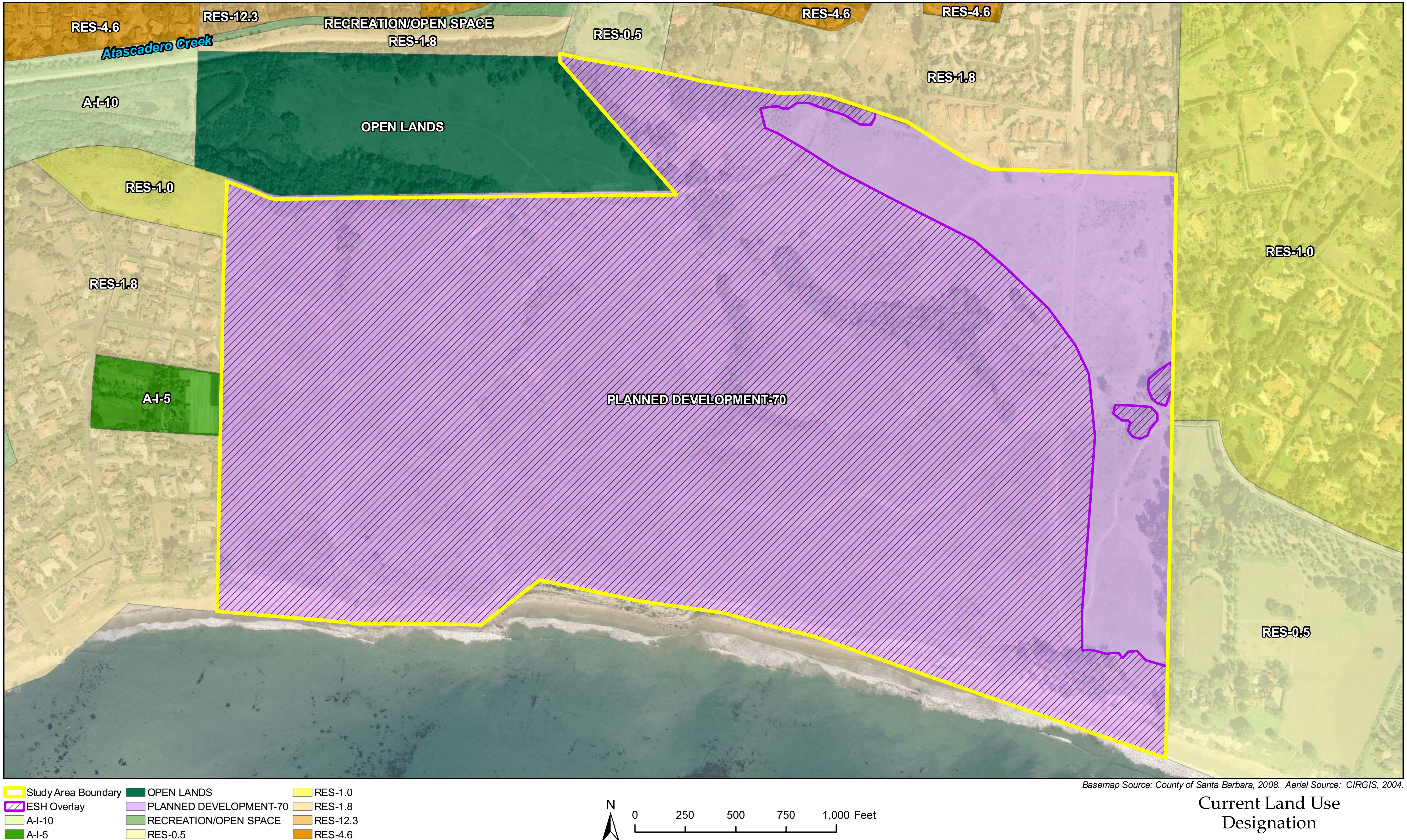
Hydrology

About 65 percent of the terrain of the County is hilly or mountainous, and most of the remaining 35 percent is composed of valleys and plains. The county contains four principal watersheds: Santa Maria, which includes the Cuyama and Sisquoc watersheds; San Antonio Creek; Santa Ynez; and South Coast, which is composed of approximately 50 short, steep watersheds. The South Coast watershed generally includes all of the southerly drainages from Point Conception to the Ventura County line. Individual watershed size ranges from 162 acres to 30,572 acres, with an average size of 3,209 acres (County of Santa Barbara, 2007).

The study site is located within the Atascadero Creek watershed, which is part of the larger Goleta Slough watershed. The watershed of the Goleta Slough ecosystem encompasses about 45 square miles and collects drainage from seven creeks: Tecolotito (Glen Annie), Cameros, San Pedro, Las Vegas, San Jose, Atascadero and Maria Ygnacio. A majority of the watershed is steeply sloping undeveloped or agricultural land on the south slope of the Santa Ynez Mountains. Large volumes of sediment and debris are contained in runoff from the mountains and this material tends to fall out of suspension as topography flattens and flow velocities drop where the creeks enter the Goleta Slough.

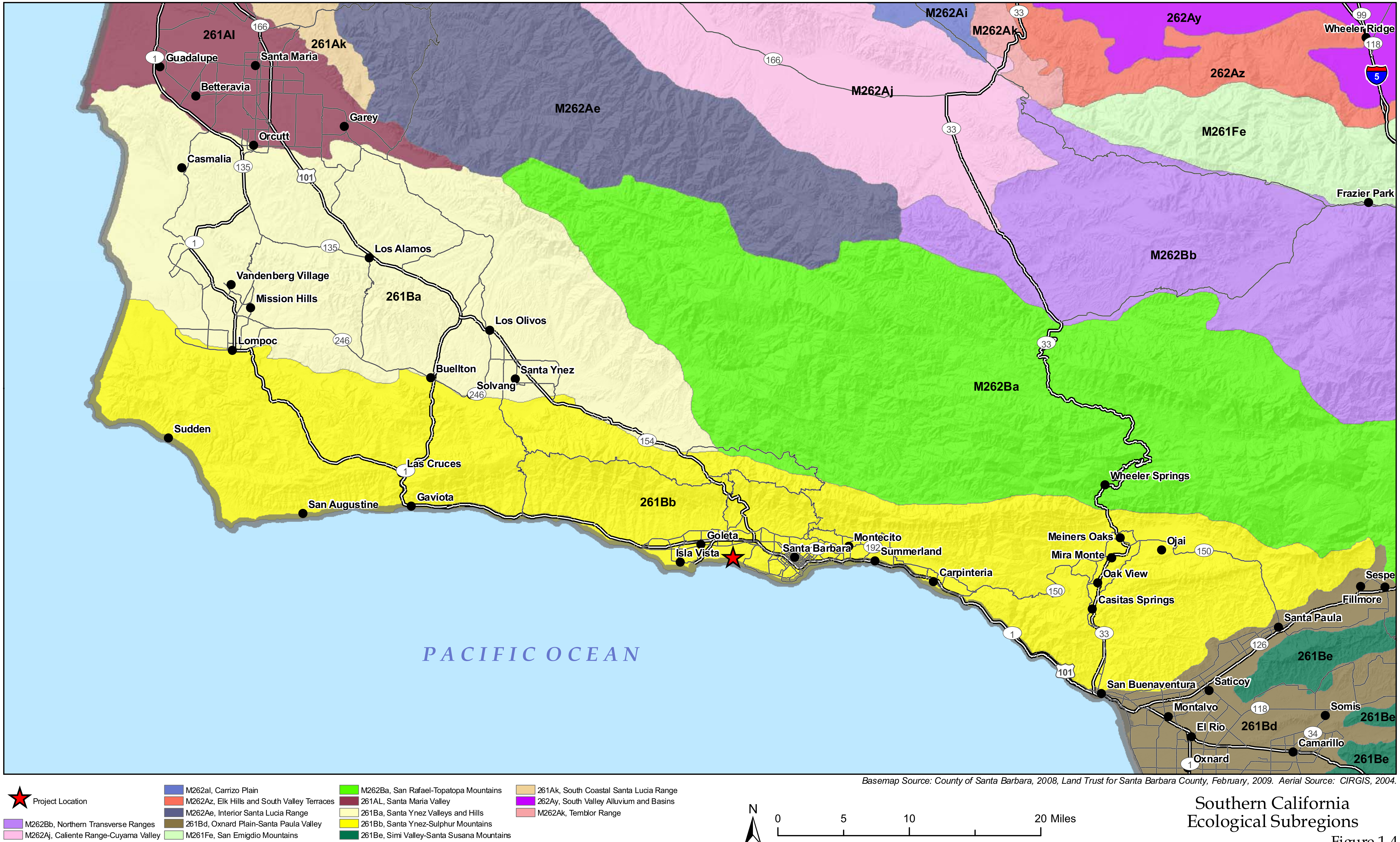
Vegetation

Natural vegetation is also influenced by topography and altitude, and the amount of residual soil and the character of the geologic formation upon which it grows. Thus, due to the rapid erosion of mountains within the area, only a thin layer of soils is able to accumulate on steep slopes. Consequently, much of the local mountainous terrain is vegetated by dense chaparral, with oak woodland on north-facing slopes and in canyons. Steeper slopes with little or no soil are also covered with coastal scrub, chaparral, or oak woodland. In areas with deeper soils, such as in the valleys where weathered material accumulates over time, grasslands and oak savannas are typical of natural conditions (Smith, 1998). The valley areas are preferred for rangeland and urban development and many within the region have been altered for such activities. Other plant communities native to the Santa Ynez – Sulphur Mountains area include: coastal dune, marsh, estuary, wetland, riparian



Current Land Use Designation

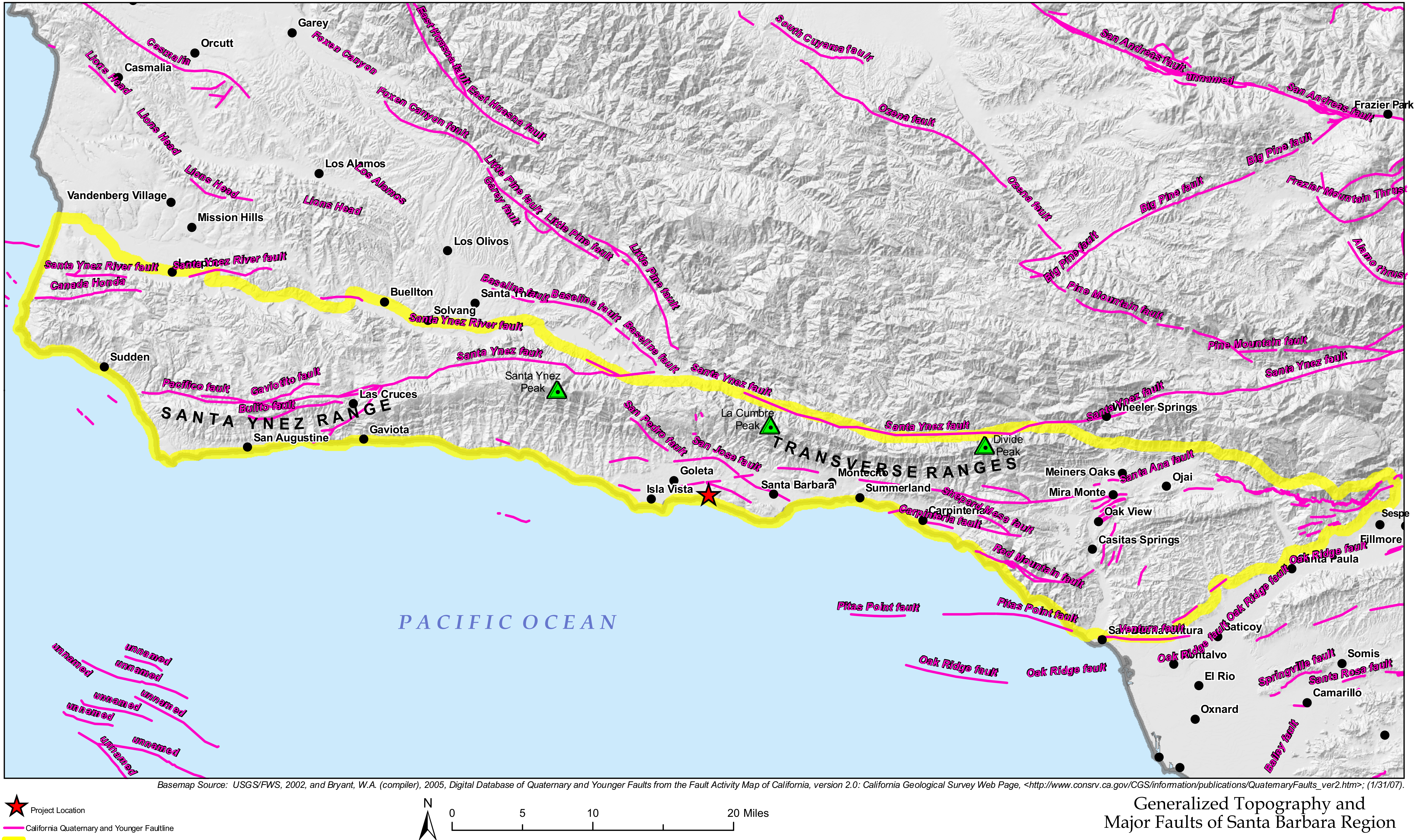
Figure 1-3



Basemap Source: County of Santa Barbara, 2008, Land Trust for Santa Barbara County, February, 2009. Aerial Source: CIRGIS, 2004.

Southern California Ecological Subregions

Figure 1-4



Basemap Source: USGS/FWS, 2002, and Bryant, W.A. (compiler), 2005, Digital Database of Quaternary and Younger Faults from the Fault Activity Map of California, version 2.0: California Geological Survey Web Page, <http://www.consrv.ca.gov/CGS/information/publications/QuaternaryFaults_ver2.htm>; (1/31/07).

Generalized Topography and Major Faults of Santa Barbara Region

Figure 1-5

woodland, riparian scrub, coastal prairie, valley and foothill grassland, vernal pool, coastal bluff scrub, coastal scrub, chaparral, and cismontane woodland.

Land Use

Although the largest human population in the County is concentrated within the coastal plain, referred to as the "South Coast," much of the Santa Ynez – Sulphur Mountains ecological unit is comprised of public lands administered by the U.S. Forest Service. The Los Padres National Forest includes the foothills of the Santa Ynez Mountains on the South Coast north through much of the County's interior, extending north through San Luis Obispo County to Monterey County and east through the northern half of Ventura County. The federal government is the largest land owner in Santa Barbara County; the U.S. Forest Service and Air Force have jurisdiction over nearly 46 percent of the land area. The Los Padres National Forest and Vandenberg Air Force Base comprise approximately 748,000 acres combined. In addition, numerous state, County, and local parks, as well as privately held conservation lands, are located along the South Coast, supporting important local habitats, species, and linkages along the coast and to the interior mountains and valleys. The state of California owns approximately one percent of County lands, or 18,000 acres. The majority of this acreage is under management by the University of California, Santa Barbara (UCSB) at the Sedgwick Reserve, which is operated as part of the University of California Natural Reserve System and is located east of Los Olivos in the Santa Ynez Valley. Other large areas under state management include: La Purisima Mission State Park, located near Lompoc, and several state parks located along the coast within the City of Santa Barbara and in the Santa Ynez Mountains. Less than one percent of the County is owned by the County or other local agencies, with the remainder privately owned. Thirty-four percent of the county (555,000 acres) is in agricultural preserves, and an additional 13 percent (206,000 acres) is zoned for 100-acre or greater lot size, or is in other agriculturally zoned land. Less than three percent of the County is within incorporated cities, two percent is within unincorporated urban areas, and less than one percent is zoned for hillside estate lots of 40 acres or more (County of Santa Barbara, 2007).

More Mesa is one of a few undeveloped coastal properties within the urban boundaries of the cities of Santa Barbara and Goleta. Nearby sizable coastal open space lands include Goleta Slough Ecological Reserve (430 acres), Coal Oil Point Reserve (135 acres), Ellwood Mesa (137 acres), Santa Barbara Park Shores (118 acres), UCSB Campus Lagoon, and Arroyo Burro Beach / Douglas Family Preserve. Figure 1-6 illustrates the number and proximity of these open space lands to the study site. Directly west of Goleta is the Gaviota Coast, which represents 15 percent of the 300-mile southern California coastline, but contains about 50 percent of its remaining rural coastline (U.S. National Park Service, 2003).

1.4.2 STUDY SITE

Geology

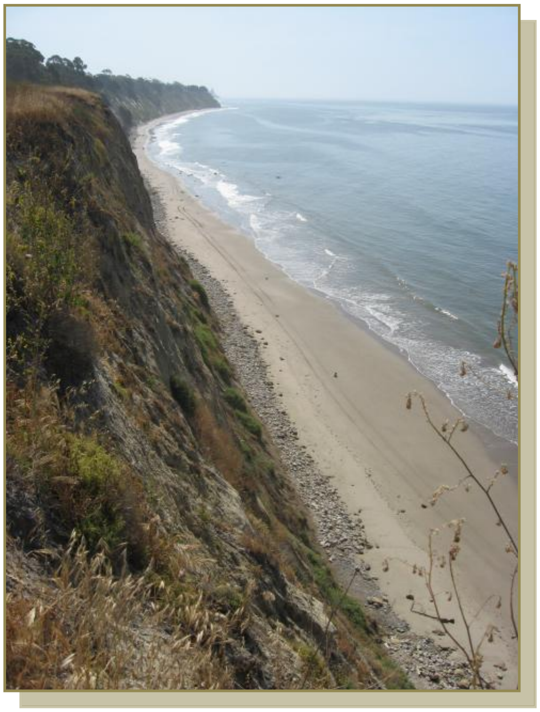
More Mesa is located on the Santa Barbara coastal plain between the cities of Santa Barbara and Goleta in the greater Goleta Valley. The site is located on a coastal terrace that rises above and separates the Goleta Valley from the Pacific Ocean between Hope Ranch Park and the mouth of the Goleta Slough (UCSB, 1982). The More Ranch Fault, which underlies Atascadero Creek, is responsible for much of the uplift that has raised this coastal terrace feature (Figure 1-7). The terrace slopes gently to the north and is more than three miles in length (east to west) and averages slightly more than a half-mile in width (north to south). As shown in Figure 1-7, the study site is slightly less than a mile in length and roughly one-half mile in width.

Marine terraces are landforms that were created by marine processes and are now located above current sea level. Steep, eroded coastal cliffs form on the oceanside of the elevated terraces. The terraces consist of a nearly flat platform formed by wave erosion during previous sea-level high stands, similar to modern intertidal platforms. The terraces are elevated above present sea levels by either the land rising, as is occurring along the tectonically active California coast, or by a fall in sea level. In California, the majority of marine terraces are underlain by marine sandstones, siltstones and mudstones that are topped by a relatively thin layer of poorly- to non-lithified sands, gravels and cobbles. In many areas, multiple terraces are preserved, although many are degraded by terrestrial erosion. The relict terraces represent a history of both tectonic uplift and fluctuations in sea level going back hundreds of thousands of years (Hapke et al., 2007). Marine terraces are geomorphic features that are perhaps of the most importance to coastal managers and planners in developed areas because they are generally flat-topped and provide excellent views of the ocean, and thus have been heavily developed throughout California.

More Mesa is predominantly underlain by the Santa Barbara and Monterey geologic formations. These formations are visible along the cliff face of the study site's southern boundary. The Santa Barbara Formation consists of massive to bedded, poorly consolidated tan to yellow fossiliferous sand and silt. The Monterey Formation consists of thin bedded, hard, platy to brittle, siliceous shale. During the late Pliocene to early Pleistocene these marine silts and shale were faulted and folded. In the late Pleistocene, older dissected surficial sediments, former alluvial deposits of silt, sand and gravel covered these materials across the site (Dibblee, 1987).

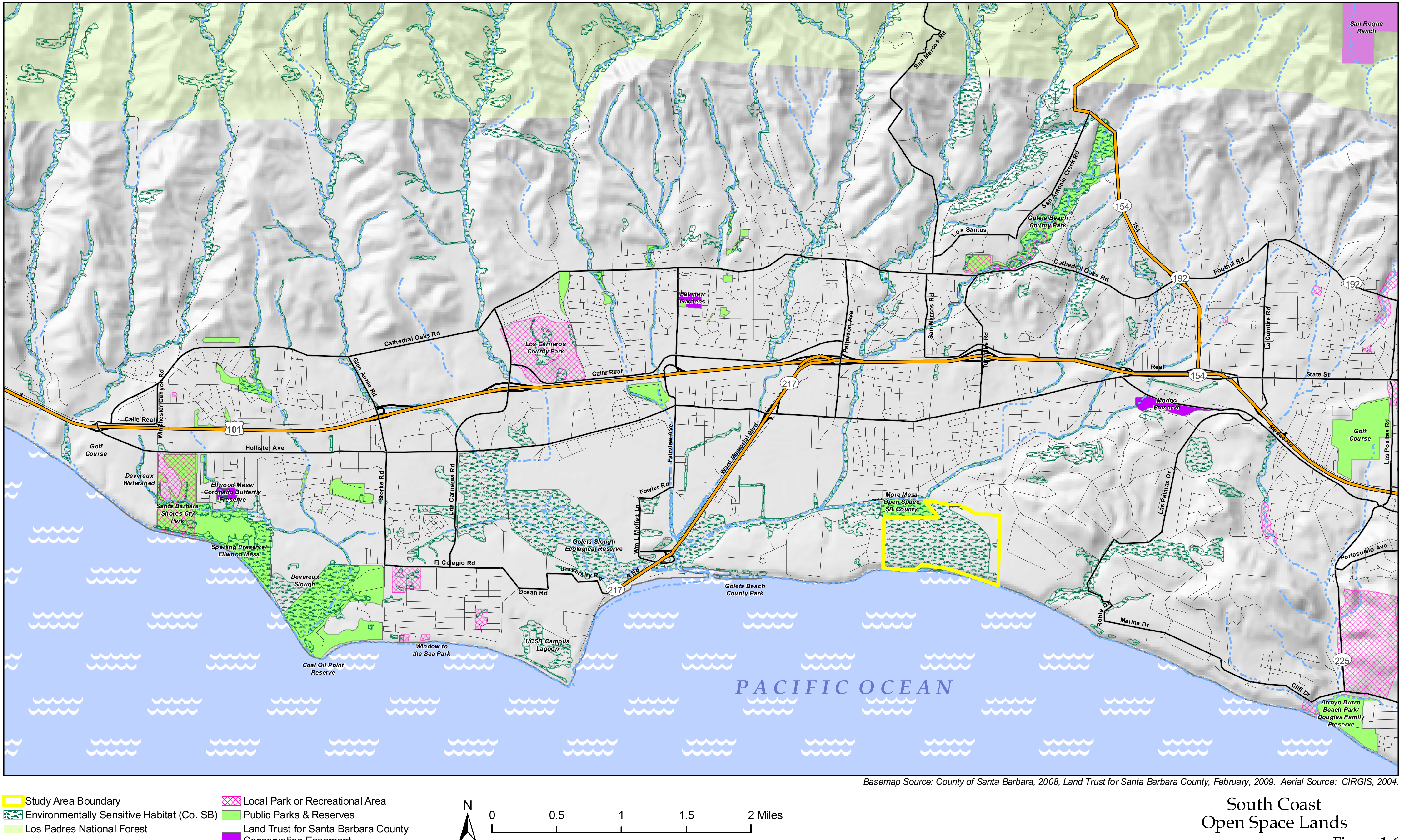
Soils

Soils within the study site include loamy sand, fine sandy loam, clay and beaches, including: Baywood loamy sands, Camarillo fine sand loam, Concepcion fine sandy loam, and Diablo Clay (Figure 1-8). The dominant soil series onsite is the Concepcion series, which consists of moderately well-drained soils. This series supports annual grasses and forbs, and has a considerably slow permeability. Developed lands with this soil series are typically used for range (cattle, horse, and sheep grazing), urban development, or dry-farming grain or hay. Erosive features are common in this series and often include deep-fluted gullies and rills in the bottom of drainages and on side slopes. The second largest series onsite is the Diablo series, which consists of well-drained soils on low hills. The soils are formed in soft shale and mudstone. Typical vegetation for this series includes annual grasses, forbs, and scattered oaks. Permeability is also slow for this series, and typical developed land uses are orchards, range, and urban development. The Baywood series differs from the two series above due to its rapid permeability. The soils are formed in wind-blown deposits that have covered old terrace soils. This series also supports annual grasses and forbs, as well as brush. Typical agricultural uses for Baywood soils are lemon and avocado orchards; use for range and urban development also occurs. The Camarillo series consists of poorly drained soils on flood plains and often supports water-tolerant vegetation such as grasses, forbs, willow and tules. This soil will pond during prolonged rain. The soil is moderately permeable and typical developed uses include lemon orchards, field crops, and urban development (Shipman, 1981). For a more detailed description of each of these soil series and their distribution onsite refer to Section 2.3, *Wetlands*.



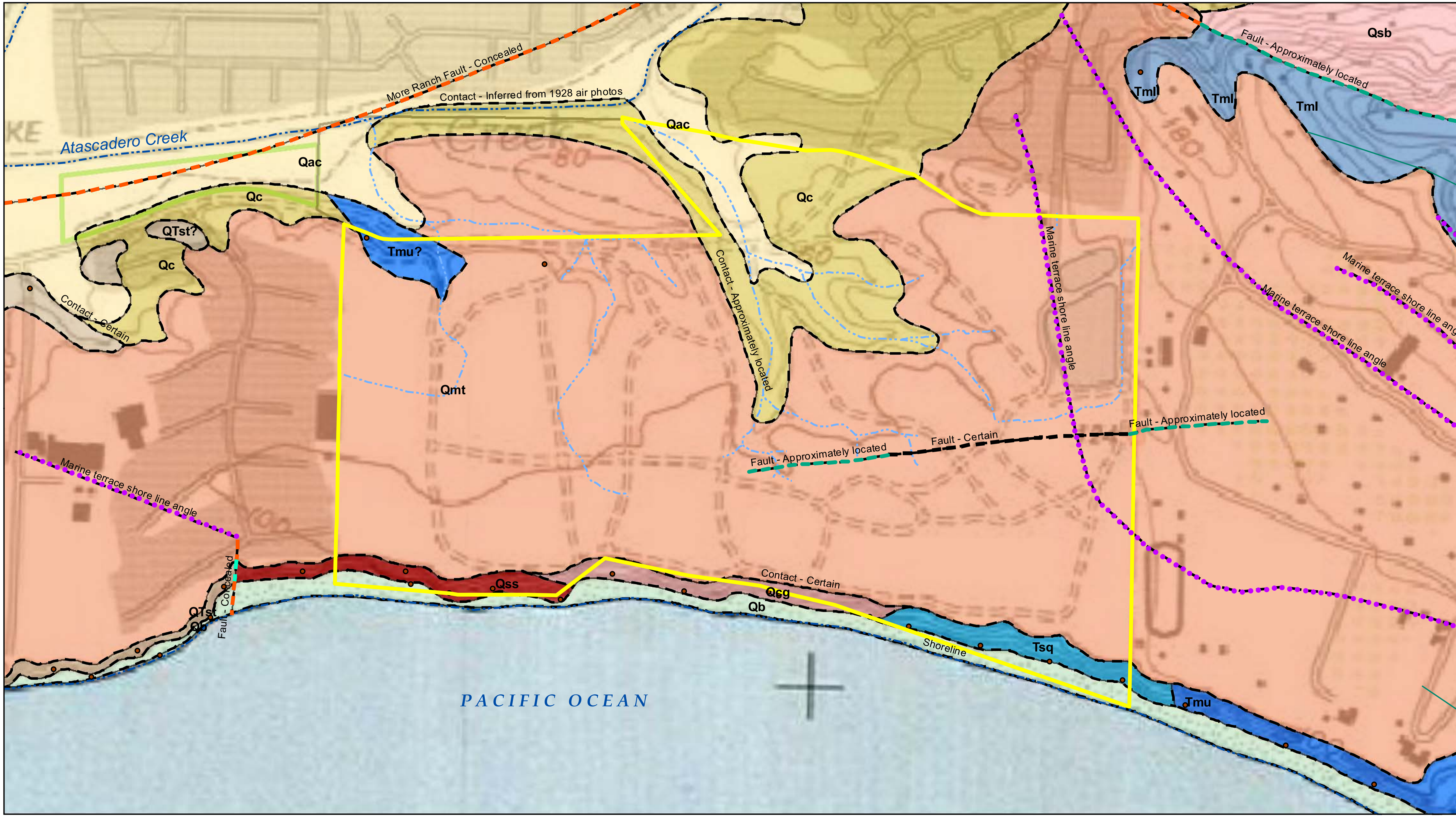
More Mesa at its southern extent descends with a near vertical 100 foot cliff to the permanent sandy beaches below. The steep drop is encised with only a few drainages, only one of which is eroded enough to allow general pedestrian access to the beach. Sandy beaches at the base of the cliff stretch the length of the site, extending roughly 80 to 100 feet in width. These beaches are narrow, sandy, and stony. The permanent beaches act as a natural buffer that protects coastal land during storms and provide habitat for local and migratory wildlife. According to the National Assessment of Shoreline Change (2006), a study of the past century shows that the net long-term shoreline change rate for the South Coast was accretional, with an average rate of 0.3 meters per year (m/yr) of deposition (increase in width). Directly north of the City of Santa Barbara, including the study site, most of the coastline had little measurable change in the long-term. In the short-term the area at and just north of Isla Vista experienced high short-term erosion rates, exceeding –2.0 m/yr (Hapke et al., 2006).

An additional report, Assessment of Shoreline Change (2007), identified the average rate of coastal cliff retreat along the entire California coast as -0.3±0.2 m/yr, or 17.7 m over a 70-year period. Retreat rates were generally lowest in southern California where



South Coast
Open Space Lands

Figure 1-6



Study Area Boundary
Fault - Approximately located
Fault - Certain
Fault - Concealed
Fault - Inferred
Marine terrace shore line angle

QTst, Siltstone unit (lower Pleistocene and/or upper Pliocene);
QTst?, Siltstone unit, uncertain (lower Pleistocene and/or upper Pliocene)
Qac, Alluvium and colluvium (Holocene and upper Pleistocene)
Qb, Beach deposits (Holocene)
Qc, Colluvium (Holocene and upper Pleistocene)
Qcg, Conglomeratic unit (middle Pleistocene?)

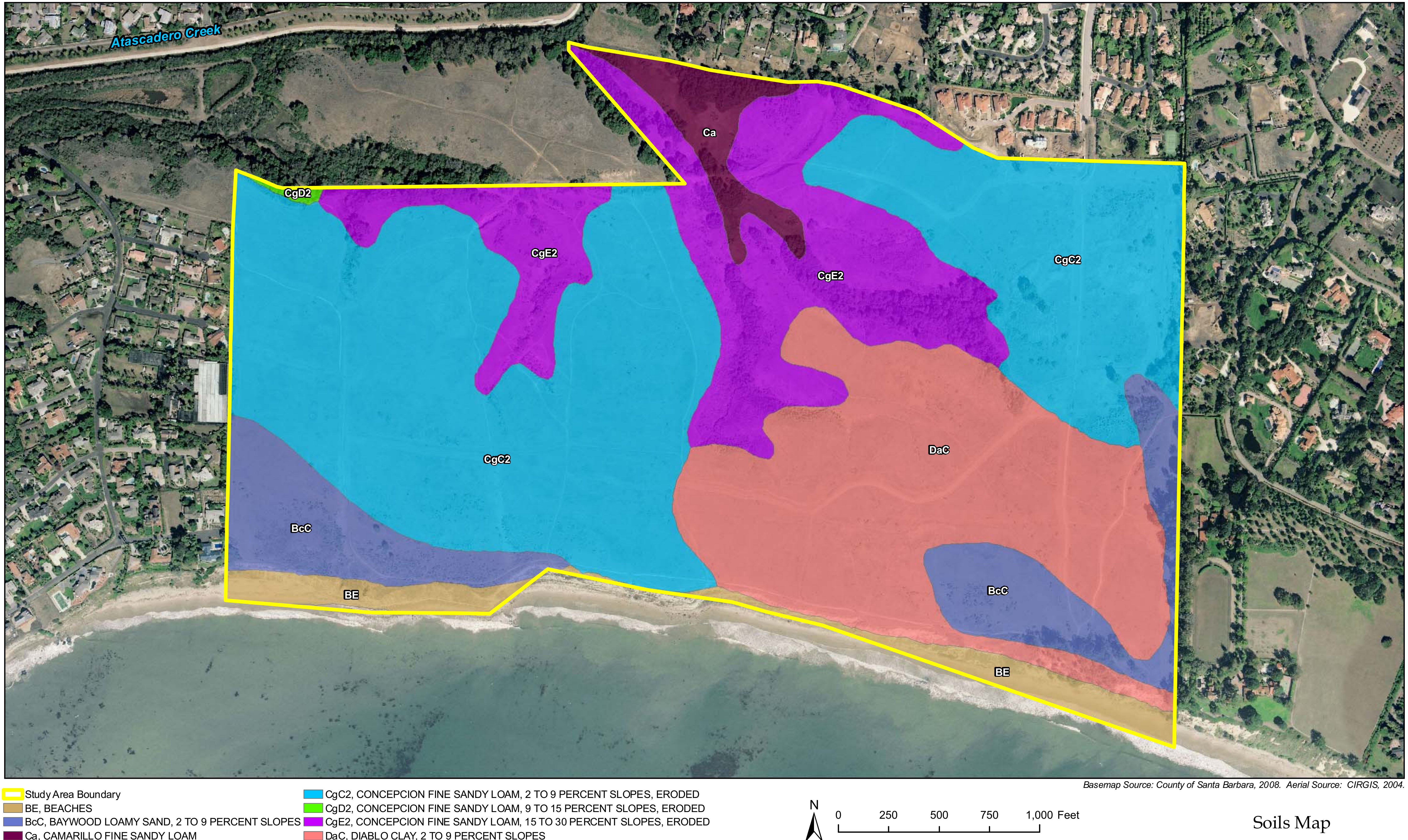
Qmt, Marine terrace deposits (upper Pleistocene)
Qsb, Santa Barbara Formation (middle Pleistocene)
Qss, Sandstone unit (middle Pleistocene?)
Tml, Monterey Formation, lower calcareous unit (middle and lower Miocene)
Tmu, Monterey Formation, upper siliceous unit (upper Miocene);
Tmu?, Monterey Formation, upper siliceous unit (upper Miocene)
Tsq, Sisquoc Formation (Pliocene and upper Miocene)

Basemap Source: Preliminary Geologic Map of the Santa Barbara Coastal Plain Area, Santa Barbara, California, USGS, 2006, County of Santa Barbara, 2008.

N
0 250 500 750 1,000 Feet

Geology of Study Area and Vicinity

Figure 1-7



Soils Map

Figure 1-8

coastal engineering projects have greatly altered the natural coastal system. Seawalls and/or riprap revetments have been constructed along the southern California coast, due, in part, to the larger population pressures in this area. The average retreat rate in southern California is the lowest in the state (-0.2 m/yr).

Hydrology

Atascadero Creek is located along the northern boundary of the coastal terrace on which More Mesa is located and receives the majority of the study site's runoff (Figure 1-2). Although the majority of the site is relatively flat, elevation generally ranges between 100 and 120 feet above mean-sea-level (msl). The exceptions to this generalization are the drainages within the site and the northern project boundary, which have eroded over time. Two main drainages collect the site's runoff for delivery to Atascadero Creek. Drainage A is the westerly most collector and generally drains the western half of the study site as well as the County parcel. Drainage B collects the eastern half of the study site's runoff and encompasses a larger portion of the site. At several points along the study boundary offsite drainage is routed onsite through man-made structures. Further, numerous areas of seasonal ponding occur where, due to topography or man-made barriers, water is restricted from moving offsite. One natural location of ponding is a vernal pool located at the southeastern corner of the site.

Climate

As noted above, the County's unique physical orientation, which includes the east-west Transverse mountain ranges, produces a profound orographic effect when a storm approaches from the Pacific Ocean. Due to this orientation most precipitation occurs between November and March, generated from winter storm systems that form in the northern Pacific Ocean. Historical records show that local drought periods of several years or more are cyclical, recurring about every forty years, and tree ring studies covering time periods of several centuries reveal apparent droughts lasting as long as 16 years or more (Rodriguez and Lang, 2001).

Figure 1-9 illustrates the total annual rainfall for the City of Santa Barbara with a three-year moving average for water years between 1961 and 2009 (City of Santa Barbara, 2009). A water year begins on October 1st and ends September 30th, grouping consecutive wet months into one year rather than splitting them as is done with a general calendar year ending December 30th. As shown, annual rainfall totals vary greatly from year-to-year. However, the moving average more clearly illustrates the wet and dry cycles occurring over the 49-year period.

As shown in Figure 1-9, the lowest water year on record was in 2007 with only 6.0 inches. This differs dramatically from the year preceding commencement of the 1982 study. More than 23 inches were recorded during the 1980 water year. The rainfall average for the years 1978 – 1980 was the highest of the entire 49 year period, 29 inches. The three-year moving average for the years preceding this study totaled only 14.9 inches.

Figure I-9 Total Annual Rainfall per Water Year

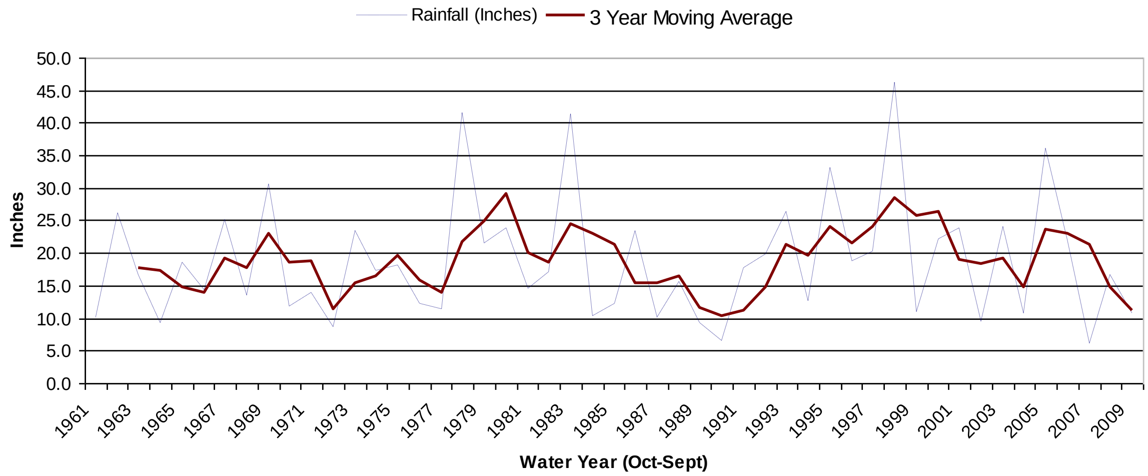
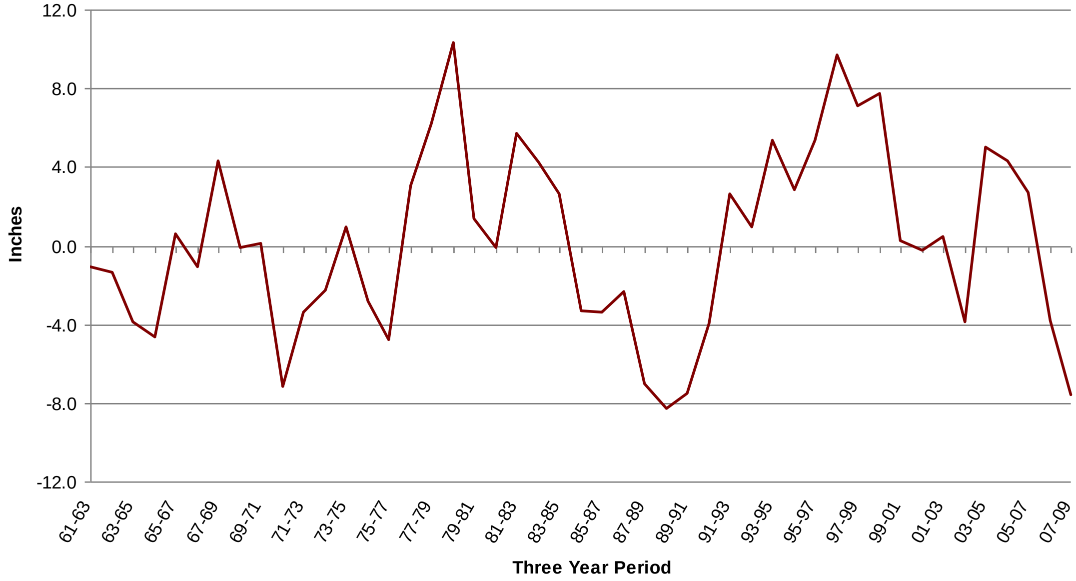


Figure 1-10 shows the departure from the mean for the three-year moving average. The average annual rainfall for the City during the 49-year period is 18.7 inches. This figure better illustrates those periods (multiple years) of above, or below, average rainfall.

Figure I-10 Depature From Mean for Three-Year Running Average



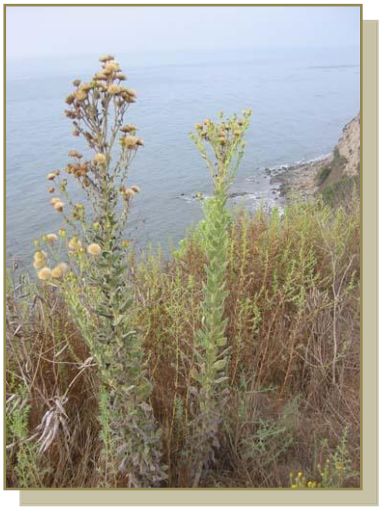
Although the January prior to commencement of this study had over 11 inches of rainfall in one month, the study site and region were in a drought state throughout the period of this study due to the declining levels of precipitation the prior two years. In contrast, the years prior to and during the 1982 evaluation of More Mesa were considerably wetter, with increasing average annual rainfall before and during the earlier study.

Temperatures along the immediate coast are less extreme as compared to more inland Santa Barbara and Goleta locations due largely to the moderating effect of the Pacific Ocean. At the nearby Goleta Slough, summer maximum temperatures average in the 70s, (ºF), while minimums average in the 50s to low 60s. Maximum temperatures during the winter months average in the 60s, with minimums in the 40s. Prevailing winds in the area are from the northwest. However, due to the blocking effect of the Santa Ynez Mountains and deflection of these winds around Point Conception, daytime sea breezes are usually from the southeast to southwest along the South Coast. Typically winds blow from the southeast during the morning, shifting direction and increasing strength through the south into the southwest by early afternoon and peaking in strength in the afternoon. Onshore winds often decrease in the late afternoon, resulting in a light northeasterly land breeze at night, extending offshore during the colder months of the year until daytime heating reverses the flow back onshore. Significant downslope winds and warming events, "sundowner winds" also periodically occur along the Santa Barbara coast. These winds are typically generated when there is a rapid rise in temperature and decrease in relative humidity and may reach speeds of gale force (Blier, 1998).

A third and important element of the local climate is the presence of an inversion layer that often forms at altitudes of 500 to 2,000 feet, trapping cool, moist air at lower elevations. Known as a "marine layer," the low fog and clouds are formed by condensation below the inversion, especially during the night and morning hours when air temperatures are lower. During the spring and summer when the ocean is relatively cool, the marine layer is drawn inland by the rising of the warm air above the land and forms a fog layer above the coast. Although the fog layer often dissipates by mid-day, it greatly lessens warming and evaporation along the coast (Goleta Slough Management Committee, 1997).

Vegetation

A total of 20 distinct vegetation types were mapped within the study area (See Section 2, *Vegetation and Habitats*). These can be aggregated to form eight general vegetation or habitat types that include: 1) grassland; 2) coastal scrub; 3) oak woodland; 4) riparian; 5) wetland; 6) sandy shore; 7) ornamental; and 8) ruderal (or disturbed). The dominant plant community on More Mesa is grassland, which includes five alliances and associations (series): California Annual Grassland, California Brome, Introduced Perennial Grassland, Meadow Barley, and Purple Needlegrass. These grassland types are located throughout the site. Coastal scrub communities included five distinct alliances and series: California Encelia, Coastal Bluff Scrub, Coastal Dune Scrub, Coyote Brush, and Seacliff Buckwheat. These plants tend to be located along the coastal bluffs or along the margins of drainages. Coast live oak is the sole dominant species in the coast live oak plant community and is primarily confined to north-facing slopes and drainage ravines in the northern portion of the site. Riparian habitat present onsite corresponds to the Mixed Willow Series described by Sawyer and Keeler-Wolf (1995) and occurs in natural drainage features across the northern and eastern portion of the site. Eight vegetation types were identified within the study area that are wetland plant communities. Wetlands were identified primarily within natural drainage features that traverse the site, however, small isolated pocket wetlands were identified along trailsides and in grassland areas. In addition, a naturally occurring vernal pool is located in the southeastern corner of the site. The following wetland plant communities were observed onsite: *Alkali Heath, Bulrush-Cattail, Introduced Perennial Grassland, Marsh Baccharis, Meadow Barley, Mixed Willow, and Spikerush*. The sandy shore (i.e.: coastal strand) portion of the site is primarily devoid of vascular plant species, and is



composed of bare sands and rock. Some areas contain species identified in the coastal bluff scrub community extending onto the sandy shore. In this portion of the site, high tides and surf are the important factors regulating the distribution of vegetation.

Ornamental vegetation consisting of blue gum (*Eucalyptus globulus*) and other species of eucalyptus are located along the northern study area boundary within the County parcel that is along the Atascadero Creek interface. Areas of ornamental vegetation are also located in the northeastern corner of the site, along the eastern site border with the Hope Ranch, as well as in the southeastern corner of the site on the coastal bluff near the vernal pool. Ruderal or disturbed habitat was also present in select portions of the site, mostly in areas of past soil disturbance. Ruderal habitat observed onsite included old earthen berm areas dominated by non-native species such as wild radish (*Raphanus sativa*) and poison hemlock (*Conium maculatum*), as well as bare soil areas where historic or ongoing disturbance appears to suppress plant colonization and growth.

Land Use

As the soil series types identified at the study site are typically used throughout the South Coast for range, urban development, or dry-farming grain or hay, it follows that historic use of More Mesa included such activities. The following is a brief overview of the historic land use onsite, summarized largely from Ferren's 1982 A Biological Evaluation of More Mesa.

Archaeological investigations within the study site reveal utilization by early Native Americans indicative of low density, non-residential, or special activity use. Additionally, Spanish explorers reported a nearby population of Native Americans living adjacent to the Goleta Slough prior to the establishment of the Santa Barbara Mission in 1786. Upon settlement of the Santa Barbara area, the Goleta Valley was placed under the jurisdiction of the Mission.

In 1846, 24 years after the overthrow of the Spanish by the Republic of Mexico, Governor Pio Pico granted ownership of the 4426-acre Rancho La Goleta to Daniel and Rafaela Hill. The current study area was contained within this Rancho. Much of Goleta Valley, and possibly the study site, was put under agricultural grazing at that time. The property changed ownership several times during the 1800's, ending with its namesake, the More Family, who was known as having one of the most productive ranches in the Goleta Valley. It has also been noted that during the late 19th and early 20th century that portions of More Mesa were cultivated with lima beans and barley, as well as utilized for livestock grazing. Agricultural and grazing use of the study site continued through to the 1940's.

The Southern Pacific Railroad was extended in 1887 to west of Santa Barbara through More Mesa to the Goleta Depot. The railroad was later abandoned in 1899 (County of Santa Barbara, 1992a). In the late 1920's, Mobil Oil Company began to explore for, and discovered, natural gas. In the 1940's a pipeline was installed through the study site generally within the abandoned railroad bed. The old railroad bed is now used as an access road that extends across the study site and forms the northern-west half of the property boundary.

Much of the site was tilled during the 1950's, cattle continued to graze, and Harding grass (*Phalaris aquatica*) was thought to have been introduced as grazing material for cattle. During this period much of the scrub-shrub vegetation along Atascadero Creek was removed; there was an increase in off-road vehicle use at the site; and surrounding lands began to be further altered with residential home development, greenhouse development, and agricultural use. Continued growth in residential density adjacent to the site has occurred since the 1960's. Numerous variations in use of the site occurred throughout this period, including periods of cultivation and abandonment; discing and regular brush clearance for fire prevention; grading for a model airplane strip on the western portion of the site; recreational use (such as off-road vehicles, pedestrian, equestrian, cyclists); and controlled burns.

Corresponding to the growth in surrounding development, there has been a continued interest in development of the study site since the 1960's. A 600-unit development was proposed for the study site in 1965, but was later withdrawn. Another 600-unit residential development was proposed in 1972 and an Environmental Impact Report (EIR) was prepared. The County denied the application for rezoning in 1973 and the project was terminated (AMEC, 2008). In 1982, the study site was recognized under the County's LCP as containing a critical foraging, nesting and breeding habitat for the white-tailed kite and as such, was afforded protection under the LCP resource protection policies. As part of the County's LCP, a habitat study of More Mesa was required prior to the filing of any plans for development. This study, titled A Biological Evaluation of More Mesa, was conducted in 1981-1982 and its findings later adopted by the County. Later, in 1991, the 34.5-acre parcel formerly known as the Austin Andrews property, located at the northwesterly most corner of More Mesa, was acquired by the Land Trust for Santa Barbara County and the title then transferred to the County for management. In 1993, the GCP provided further protection for the site through the creation of specific policies and development standards regulating land use on the remaining 265-acre site. The GCP designated approximately 40 acres along the eastern edge of the study site as suitable for development with PD-70 zoning. The remainder of the site was designated as ESH and unsuitable for development.

1.5 DOCUMENT ORGANIZATION

To allow for ease of comparison with the 1982 study, this document has been prepared in a similar format as the 1982 study with six main sections: 1) Introduction; 2) Vegetation and Habitats; 3) Vertebrates; 4) Invertebrates; 5) Habitat Sensitivity; and 6) Options for Development. Sections 2 to 4 provide a discussion of current conditions at the site, an inventory of species identified, and a comparison of current conditions to those presented in the 1982 study. To further assist in this comparison, each of these sections includes an illustration of study results overlain with the original 1982 physiographic areas. However, the current study has examined the mesa at a finer scale than that of the original physiographic areas and has provided its textual description of results as such. The physiographic areas were not used for analysis purposes, but are provided in each section to allow readers to more easily compare findings to the earlier study.

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SECTION 2 – VEGETATION AND HABITATS

This section presents the findings of vascular plant surveys, plant community mapping, wetland delineation, and wildlife habitat mapping performed at More Mesa during 2008 and 2009. These surveys are linked in that the flora of the site comprises the plant communities, the plant community is one of the parameters that determine a wildlife habitat, and wetlands are a distinct type of both plant community and wildlife habitat.

2.1 FLORISTIC INVENTORY

2.1.1 INTRODUCTION

A series of field surveys was conducted in 2008-2009 by Rincon Consultants biologists to catalog the floristic composition and determine presence/absence of special-status plant species on the 300-acre More Mesa study area. The purpose of this effort was to identify all vascular plants occurring within the site and determine the presence or absence of special status species. An additional goal was to assess whether the floristic composition was similar to that previously recorded in the 1982 study prepared by Ferren et al.

2.1.2 METHODOLOGY

Rincon botanists visited the study area during the months of March, April, May, June, July and August 2008 to characterize existing conditions, conduct an inventory of vascular plants, and collect data in support of the jurisdictional wetland delineation (please refer to Section 2.3 of this document). Additional visits to the study area were conducted in February, March, April and May 2009 to identify any additional plant species that may have been missed during previous visits and obtain additional voucher specimens.

During each field visit, all vascular plant species observed were identified primarily in accordance with the nomenclature presented in Hickman (1993); exceptions apply to taxa that have received updated taxonomic treatments. Species not readily identifiable in the field were brought back to the office for further analysis. Voucher specimens for selected plant species were collected and deposited at the Santa Barbara Botanic Garden (SBBG) with assistance from Dr. Elizabeth Painter, Research Botanist at the SBBG.

The entire study area was surveyed during the initial field visits to characterize the existing biological resources and to evaluate plant habitats that could potentially support special-status species or otherwise be of concern to the County of Santa Barbara, the CDFG, the California Coastal Commission (CCC), and the USFWS. Existing trails were used to access all parts of the study area and intuitively controlled transects were walked to view all habitat types present throughout the study area, with the exception of densely vegetated drainage areas that were inaccessible. In addition, the steep coastal bluff along the southern boundary of the study area was traversed using existing foot trails, and binoculars were used from select vantage points to view plants and plant communities and habitat types in this area.

An important function of the floristic survey was a comprehensive search for special status plants within the study area. For the purposes of this inventory, special-status plants are vascular plants that are: (1) listed as rare, threatened, or endangered by the State and/or federal governments; (2) proposed for threatened or endangered status by the federal government; (3) designated as candidates for listing as rare, threatened, or endangered status by the State and/or federal governments; (4) included on the California Department of Fish and Game *Special Vascular Plants, Bryophytes, and Lichens* List; (5) California Native Plant Society (CNPS) List 1A, 1B, 2, 3, or 4; and/or (6) included on the Santa Barbara Botanic Garden (SBBG) list of locally rare plant taxa (Wilken 2007).

Rincon botanists reviewed the *Goleta*, *California* 7.5-minute U.S. Geological Survey (USGS) quadrangle, site-specific aerial imagery (County of Santa Barbara, 2004), and on-line Web Soil Survey (U.S. Department of Agriculture, Natural Resources Conservation Service, 2008) to help establish a target list of special status plants potentially occurring onsite. The USFWS list of *Federally Listed Threatened & Endangered Species Which May Occur In Santa Barbara County, CA* (U.S. Fish and Wildlife Service, 2008) was also reviewed, as were the California Department of Fish and Game (CDFG) California Natural Diversity Data Base (CNDDB) (California Department of Fish and Game, 2008) and CNPS on-line *Inventory of Rare and Endangered Plants* (California Native Plant Society 2008) for records of special-status plant species occurrences on or in the vicinity of the study area.

The CNDDB and *Inventory* queries included the *Point Conception*, *Sacate*, *Gaviota*, *Tajiguas*, *Dos Pueblos Canyon*, *Goleta*, *Santa Barbara*, and *Carpinteria*, *California* USGS quadrangles to represent other areas that contain coastal habitat types similar to those found on the study area and to identify special-status plant species with the highest potential for occurrence on the study area. These quadrangles encompassed a sufficient stretch of similar coastal terrace habitat west and east of the study area to accommodate for regional habitat diversity, and to compensate for the limitations of records contained within the CNDDB and CNPS *Inventory* associated with areas in the vicinity of the study area that have yet to be surveyed and/or reported. It should be noted that the CNDDB and CNPS *Inventory* are based solely on reported occurrences and do not constitute an exhaustive inventory of all special-status plants that occur in a given area, and thus, serve only as predictive tools.

Biological and environmental documents prepared for the study area (Ferren et. al, 1982; LSA Associates, 1995) as well as background biological reports prepared for other projects in the region were also reviewed for pertinent information (Ferren, 1989; Storrer and Semonsen, 1992; Hunt, 1999; Tierney, 2001; Watershed Environmental, 2002 and 2006). Personal communications with knowledgeable local experts were also undertaken to aid in the development of the target list of special-status species with potential to occur on the study area. Special-status plant species known to occur in habitat and/or soil types similar to those found on the study area were the focus of our survey efforts (please refer to Table 2.1-1 below).

Rincon botanists conducted the special-status plant species surveys in general accordance with accepted protocols that were developed by the USFWS (U.S. Fish and Wildlife Service, 2000), CDFG (California Department of Fish and Game, 2000), and CNPS (California Native Plant Society, 2001). The methodology incorporated these accepted survey practices and included the following: 1) survey personnel traversed all suitable habitat within the entire project area on foot by walking evenly spaced meandering transects to ensure thorough coverage of the area; 2) surveys were spaced throughout the spring and summer growing season to document the site’s flora; and 3) surveys were floristic in nature, and all plant species observed were recorded and identified to a sufficient level to determine rarity. Particular attention was paid to the areas containing irregular topography (e.g., drainages, topographic depressions, slumps, and swales), changes or transitions in vegetative cover (especially in areas of annual grassland compared to dense introduced perennial grassland), riparian, wetland, and coastal dune scrub because these represented the most suitable on-site habitat types for the special-status plant species on the target list. The site location of each special status specimen collected was identified on appropriate site maps. In an effort to maintain consistency with the 1982 study, catalogue data gathered for each voucher specimen included: scientific and common name; plant origin; growth habit; abundance in each of the four general vegetation types (woodland, chaparral, scrub, grassland); general flowering time; and the voucher number of the plant specimen collected from More Mesa, and listing status if applicable.

2.1.3 RESULTS

The 2008 inventory of the More Mesa flora identified 200 vascular plant species within the study area boundaries. A list of all plants observed on-site, including family, scientific and common names as well as nativity is provided in Appendix A. Of the total species observed, 103 were native (51%) and 97 were non-native species. The 200 total species represented 155 genera in 56 families.

Each species not previously recorded and/or not previously collected from the study area was collected, pressed, and deposited at the SBBG herbarium. Additionally, locally uncommon species were collected to confirm their existence within the study area. Herbarium labels were created for each voucher specimen deposited at the SBBG.

No plant taxa listed as rare, threatened, or endangered under the federal or California Endangered Species Acts were observed during the 2008-2009 floristic inventory. Table 2.1-1 identifies special status plants that were searched for during the course of the floristic inventory to determine their presence or absence from the site. Included in the table are general habitat requirements as well as known geographic distribution and the presence/absence determination.

No CNPS list 1, 2, or 3 species were identified onsite. Two CNPS List 4.2 species, cliff desert dandelion (*Malacothrix saxatilis* var. *saxatilis*) and southern California black walnut (*Juglans californica*), and three locally rare species (Wilken, 2007), Pacific foxtail (*Alopecurus saccatus*), coyote thistle (*Eryngium vaseyi)*, and coast allocarya (*Plagiobothrys undulatus*), were confirmed to occur within the study area. In addition, two other species of local interest, Jolon brodiaea (*Brodiaea jolonensis*) and western goldenrod (*Euthamia occidentalis*) were also identified within the study area. All species were previously identified and mapped in the 1982 study, and were relocated in the approximate areas of previous observation (Figure 2.1-1, Special-Status Plant Location Map). Pacific foxtail, coyote thistle, and coast allocarya were observed growing in vernal pool habitat in the southeastern corner of the study area. Jolon brodiaea was observed in the northern central portion of the site along the old railroad right-of-way. Western goldenrod was detected in the northwest portion of the study area along the margin of wetland habitat on the County's parcel. From a statewide perspective, these species are relatively common taxa, and are more widespread in other areas of California, but are of limited distribution in the local region.

With the exception of Jolon brodiaea, the locally uncommon native taxa are associated with wetland habitat, primarily vernal pool habitat. All other areas of wetland habitat within the study area, especially the localized topographic depressions, were searched to confirm that uncommon plants did not occur in other portions of the site. Given their limited distribution in the Goleta Valley and South Coast region in general, these plants should be given special status and evaluated during the course of any land management and/or project development decision-making processes. This is further discussed in Section 5 of this report.

Table 2.1-1 List of Special-Status Vascular Plant Species with Potential to Occur on the More Mesa Study Area

Scientific Name (Common Name)	Status[1]				County Geographic Range	Natural Communities	Blooming Period	Elevation Range	Occurrence
	Fed	State	CNPS	SBBG					
Alopecurus saccatus (Pacific foxtail)				LR	Alameda, Amador, Butte, Calaveras, Contra Costa, Colusa, Fresno, Glenn, Humboldt, Kern, Lake, Lassen, Madera, Mendocino, Merced, Monterey, Modoc, Marin, Napa, Orange, Placer, Riverside, Sacramento, Santa Barbara, Santa Cruz, San Diego, Shasta, Sierra, San Joaquin, San Mateo, Solano, Sonoma, Stanislaus, Sutter, Tehama, Tulare, Ventura, Yolo, Yuba	Coastal sage scrub, Mixed evergreen forest, Chaparral, Valley grassland/seasonal wetlands	NP[2]	0-700m	O. Present in the vernal pool in the southeastern corner of the site.
Arctostaphylos purissima (La Purisima manzanita)			1B.1	LR	Santa Barbara	Chaparral (sandy), Coastal scrub	Nov-May	60-390m	NE. Not observed during surveys
Arctostaphylos refugioensis (Refugio manzanita)			1B.2	LR	Santa Barbara, San Bernardino	Chaparral (sandstone)	Dec-Mar (May)	274-820m	NE. Not observed during surveys.
Arctostaphylos rudis (sand mesa manzanita)			1B.2	LR	Santa Barbara, San Luis Obispo	Chaparral (maritime), Coastal scrub / sandy	Nov-Feb	25-322m	NE. Not observed during surveys.
Astragalus pycnostachyus var. *lanosissimus* (Ventura marsh milk-vetch)	E	E	1B.1		Los Angeles, Orange, Santa Barbara, Ventura	Coastal dunes, Coastal scrub, Marshes and swamps (edges, coastal salt or brackish)	Jun-Oct	1-35m	NE. Not observed during surveys.

Table 2.1-1 List of Special-Status Vascular Plant Species with Potential to Occur on the More Mesa Study Area

Scientific Name (Common Name)	Status[1]				County Geographic Range	Natural Communities	Blooming Period	Elevation Range	Occurrence
	Fed	State	CNPS	SBBG					
Atriplex coulteri (Coulter's saltbush)			1B.2	LR	Anacapa Isl., Los Angeles, Orange, Santa Barbara, San Bernardino, San Clemente Isl., Santa Catalina Isl., Santa Cruz Isl., San Diego, San Miguel Isl., Santa Rosa Isl., Baja California	Coastal bluff scrub, Coastal dunes, Coastal scrub, Valley and foothill grassland / alkaline or clay	Mar-Oct	3-460m	NE. Not observed during surveys.
Atriplex serenana var. *davidsonii* (Davidson's saltscale)			1B.2	LR	Los Angeles, Orange, Riverside, Santa Barbara, Santa Catalina Isl., Santa Cruz Isl., San Diego, San Luis Obispo, Santa Rosa Isl., Ventura, Baja California	Coastal bluff scrub, Coastal scrub / alkaline	Apr-Oct	10-200m	NE. Not observed during surveys.
Brodiaea jolonensis (Jolon brodiaeae)					Los Angeles, Monterey, Orange, Riverside, Santa Barbara, San Bernardino, San Diego, San Luis Obispo, Ventura	Valley grassland, Sagebrush scrub, Chaparral	NP[2]	0-300m	O. Observed in the old railroad cut (now the SCG pipeline easement) in the north-central portion of the site
Calochortus weedii var. *vestus* (late-flowered mariposa lily)			1B.2	LR	Kern, Monterey, Santa Barbara, San Luis Obispo, Ventura	Chaparral, Cismontane woodland, Riparian woodland / often serpentinite	Jun-Aug	275-1905m	NE. Not observed during surveys.
Calystegia sepium ssp. *binghamiae* (Santa Barbara morning-glory)			1A	LR	Los Angeles, Orange, Santa Barbara, Ventura	Marshes and swamps (coastal)	Apr-May	0-20m	NE. Not observed during surveys.

Table 2.1-1 List of Special-Status Vascular Plant Species with Potential to Occur on the More Mesa Study Area

Scientific Name (Common Name)	Status[1] Fed	State	CNPS	SBBG	County Geographic Range	Natural Communities	Blooming Period	Elevation Range	Occurrence
Centromadia parryi ssp. *australis* (southern tarplant)			1B.1	LR	Los Angeles, Orange, Santa Barbara, Santa Catalina Isl., San Diego, Ventura, Baja California	Marshes and swamps (margins), Valley and foothill grassland (vernally mesic), Vernal pools	May-Nov	0-427m	NE. Not observed during surveys.
Chorizanthe polygonoides var. *longispina* (long-spined spineflower)			1B.2		Orange, Riverside, Santa Barbara, San Diego, Baja California	Chaparral, Coastal scrubm Meadows and seeps, Valley and foothill grassland, Vernal pools / often clay	Apr-Jul	30-1530m	NE. Not observed during surveys.
Cirsium rhothophilum (Surf thistle)		T	1B.2	LR	Santa Barbara, San Luis Obispo	Coastal bluff scrub, Coastal dunes	Apr-Jun	3-60m	NE. Not observed during surveys.
Cordylanthus maritimus ssp. *maritimus* (salt marsh bird's-beak)	E	E	1B.2	LR	Los Angeles, Orange, Santa Barbara, San Bernardino, San Diego, San Luis Obispo, Ventura, Baja California	Coastal dunes, Marshes and swamps (coastal salt)	May-Oct	0-30m	NE. Not observed during surveys.
Deinandra increscens ssp. *villosa* (Gaviota tarplant)	E	E	1B.1	LR	Santa Barbara	Coastal bluff scrub, Coastal scrub, Valley and foothill grassland	May-Oct	35-430m	NE. Not observed during surveys. Only *D. increscens* ssp. *increscens* observed onsite.
Delphinium umbraculorum (umbrella larkspur)			1B.3		Monterey, Santa Barbara, San Luis Obispo, Ventura	Cismontane woodland	Apr-Jun	400-1600m	NE. Not observed during surveys.
Erigeron blochmaniae (Blochman's leafy daisy)			1B.2	LR	Santa Barbara, San Luis Obispo	Coastal dunes, Coastal scrub	Jun-Aug	3-45m	NE. Not observed during sureys.

Table 2.1-1 List of Special-Status Vascular Plant Species with Potential to Occur on the More Mesa Study Area

Scientific Name (Common Name)	Status[1]				County Geographic Range	Natural Communities	Blooming Period	Elevation Range	Occurrence
	Fed	State	CNPS	SBBG					
Eriodictyon capitatum (Lompoc yerba santa)	E	R	1B.2	LR	Santa Barbara	Closed-cone coniferous forest, Chaparral (maritime) / sandy	May-Aug	40-900m	NE. Not observed during surveys. No suitable habitat present.
Eryngium vaseyi (coyote thistle)				LR	Alameda, Butte, Calaveras, Contra Costa, Colusa, Fresno, Glenn, Kern, Lake, Madera, Mendocino, Merced, Monterey, Napa, Nevada, Placer, Sacramento, Santa Barbara, San Diego, San Joaquin, San Luis Obispo, Solano, Stanislaus, Sutter, Tehama, Tulare, Ventura, Yolo, Yuba	Valley grassland (seasonal wetlands)	NP[2]	0-460m	O. Present in the vernal pool in the southeastern corner of the site.
Euthamia occidentalis (western goldenrod)					Alameda, Alpine, Amador, Butte, Contra Costa, Colusa, Fresno, Glenn, Humboldt, Inyo, Kings, Kern, Lake, Lassen, Los Angeles, Madera, Mendocino, Merced, Mono, Monterey, Modoc, Mariposa, Marin, Napa, Nevada, Orange, Plumas, Riverside, Sacramento, Santa Barbara, San Bernardino, San Benito, Santa Clara, Santa Cruz, San Diego, San Francisco, Shasta, Sierra, Siskiyou, San Joaquin, San Luis Obispo, San Mateo, Solano, Sonoma, Stanislaus, Sutter, Tehama, Trinity, Tulare, Ventura, Yolo, Yuba	Coastal salt marsh, Freshwater wetlands, Valley grassland, Coastal prairie, Sagebrush scrub / wetlands	NP[2]	0-610m	O. Present along the margins of drainage feature in northwestern portion of the County parcel. Same approximate location observed in 1982.

Table 2.1-1 List of Special-Status Vascular Plant Species with Potential to Occur on the More Mesa Study Area

Scientific Name (Common Name)	Status[1]				County Geographic Range	Natural Communities	Blooming Period	Elevation Range	Occurrence
	Fed	State	CNPS	SBBG					
Fritillaria ojaiensis (Ojai fritillary)			1B.2	LR	Monterey, Santa Barbara, San Luis Obispo, Sonoma, Ventura	Broadleaved upland forest (mesic), Chaparral, Lower montane coniferous forest / rocky	Feb-May	300-998m	NE. Not observed during surveys.
Hordeum intercedens (vernal barley)			3.2	LR	Anacapa Isl., Fresno, Kings, Los Angeles, Mono, Orange, Riverside, Santa Barbara, Santa Barbara Isl., San Benito, San Clemente Isl., Santa Catalina Isl., Santa Cruz Isl., San Diego, San Miguel Isl., San Mateo, San Nicolas Isl., Santa Rosa Isl., Ventura, Baja California	Coastal dunes, Coastal scrub, Valley and foothill grassland (saline flats and depressions), Vernal pools	Mar-Jun	5-1000m	NE. Not observed during surveys.
Horkelia cuneata ssp. *puberula* (mesa horkelia)			1B.1		Los Angeles, Orange, Riverside, Santa Barbara, San Bernardino, San Diego, San Luis Obispo, Ventura	Chaparral (maritime), Cismontane woodland, Coastal scrub / sandy or gravelly	Feb-Jul(Sep)	70-810m	NE. Not observed during surveys.
Horkelia cuneata ssp. *sericea* (Kellogg's horkelia)			1B.1		Alameda, Monterey, Marin, Santa Barbara, Santa Cruz, San Francisco, San Luis Obispo, San Mateo	Closed-cone coniferous forest, Chaparral (maritime), Coastal dunes, Coastal scrub / sandy or gravelly, openings	Apr-Sep	10-200m	NE. Not observed during surveys.
Juglans californica var. *californica* (Southern California black walnut)			4.2	LR	throughout Southern California	southern oak woodland, chaparral, coastal scrub, wetland, riparian	Mar-May	50-900m	O. observed in select locations along Drainage Area A in northwest portion of site.

Table 2.1-1 List of Special-Status Vascular Plant Species with Potential to Occur on the More Mesa Study Area

Scientific Name (Common Name)	Status[1] Fed	State	CNPS	SBBG	County Geographic Range	Natural Communities	Blooming Period	Elevation Range	Occurrence
Lasthenia conjugens (Contra Costa goldfields)	E		1B.1	LR	Alameda, Contra Costa, Mendocino, Monterey, Marin, Napa, Santa Barbara, Santa Clara, Solano, Sonoma	Cismontane woodland, Playas (alkaline), Valley and foothill grassland, Vernal pools / mesic	Mar-Jun	0-470m	NE. Not observed during surveys.
Lasthenia glabrata ssp. *coulteri* (Coulter's goldfields)			1B.1	LR	Colusa, Kern, Los Angeles, Merced, Orange, Riverside, Santa Barbara, San Bernardino, San Diego, San Luis Obispo, Santa Rosa Isl., Tulare, Ventura, Baja California	Marshes and swamps (coastal salt), Playas, Vernal pools	Feb-Jun	1-1220m	NE. Not observed during surveys.
Layia heterotricha (pale-yellow layia)			1B.1	LR	Fresno, Kings, Kern, Los Angeles, Monterey, Santa Barbara, San Benito, San Luis Obispo, Ventura	Cismontane woodland, Coastal scrub, Pinyon and juniper woodland, Valley and foothill grassland / alkaline or clay	Mar-Jun	300-1705m	NE. Not observed during surveys.
Lonicera subspicata var. *subspicata* (Santa Barbara honeysuckle)			1B.2	LR	Los Angeles, Santa Barbara, Santa Catalina Isl.	Chaparral, Cismontane woodland, Coastal scrub	May-Aug(Dec-Feb)	35-1000m	NE. Not observed during surveys.
Malacothrix saxatalis var. *saxatalis* (cliff malacothrix)			4.2		Santa Barbara, Ventura	Coastal bluff scrub, coastal scrub	Mar-Sept	3-200m	O. Present on steep coastal bluff in southern portion of the site.

Table 2.1-1 List of Special-Status Vascular Plant Species with Potential to Occur on the More Mesa Study Area

Scientific Name (Common Name)	Status[1]				County Geographic Range	Natural Communities	Blooming Period	Elevation Range	Occurrence
	Fed	State	CNPS	SBBG					
Phacelia ramossisima var. *austrolitoralis* (Branching phacelia)					coastal counties from Monterey to San Diego	coastal scrub	NP	0-2004m	not observed by Rincon botanists, but previously identified in coastal scrub habitat in 1982.
Phalaris lemmonii (Lemmon's phalaris)				LR	Alameda, Amador, Butte, Calaveras, Contra Costa, Colusa, Glenn, Kern, Los Angeles, Madera, Mendocino, Merced, Monterey, Marin, Napa, Orange, Placer, Riverside, Sacramento, Santa Barbara, Santa Clara, Santa Cruz, San Diego, San Joaquin, San Luis Obispo, Solano, Sonoma, Stanislaus, Sutter, Tulare, Ventura, Yolo	Coastal Sage Scrub, Valley Grassland, Foothill Woodland, Mixed Evergreen Forest / seasonal wetlands	NP[2]	0-610m	Not observed by Rincon botanists, but previously identified in the onsite vernal pool by UCSB researchers.
Plagiobothrys undulatus (coast allocarya)				LR	Contra Costa, El Dorado, Fresno, Kern, Lake, Madera, Mendocino, Merced, Monterey, Modoc, Marin, Riverside, Sacramento, Santa Barbara, Santa Clara, Santa Cruz, San Diego, San Joaquin, San Luis Obispo, San Mateo, Solano, Sonoma, Stanislaus, Sutter, Tehama, Ventura	Foothill woodland, Chaparral, Valley grassland / seasonal wetlands	NP[2]	0-365m	O. Present in the vernal pool in the southeast corner of the site.
Quercus dumosa (Nuttall's scrub oak)			1B.1	LR	Orange, Santa Barbara, San Diego, Baja California	Closed-cone coniferous forest, Chaparral, Coastal scrub / sandy, clay loam	Feb-Apr	15-400m	NE. Not observed during surveys.

Table 2.1-1 List of Special-Status Vascular Plant Species with Potential to Occur on the More Mesa Study Area

Scientific Name (Common Name)	Status[1] Fed	State	CNPS	SBBG	County Geographic Range	Natural Communities	Blooming Period	Elevation Range	Occurrence
Ribes amarum var. *hoffmannii* (Hoffmann's bitter gooseberry)			3		Santa Barbara, San Diego	Chaparral, Riparian woodland	Mar-Apr	150-1190m	NE. Not observed during surveys.
Scrophularia atrata (black-flowered figwort)			1B.2		Santa Barbara, San Luis Obispo	Closed-cone coniferous forest, Chaparral, Coastal dunes, Coastal scrub, Riparian scrub	Mar-Jul	10-500m	NE. Not observed during surveys.
Sparganium eurycarpum (bur-reed)					Butte, Del Norte, Kern, Mendocino, Monterey, Modoc, Napa, Orange, Plumas, Riverside, Santa Barbara, San Bernardino, Santa Clara, Santa Cruz, San Diego, San Francisco, San Luis Obispo, San Mateo, Sonoma, Yolo	Marshes and swamps (freshwater), Freshwater wetlands	NP[2]	0-1400m	Not observed by Rincon botanists, but previously identified by UCSB researchers in the northwest portion of the study area on the County parcel. Historic occurrence may be outside study area.
Suaeda esteroa (estuary seablite)			1B.2	LR	Los Angeles, Orange, Santa Barbara, San Diego, Ventura, Baja California	Marshes and swamps (coastal salt)	May-Oct (Jan)	0-5m	NE. Not observed during surveys.
Symphyotrichum subulatum var. *ligulatum* (annual water aster)					Alameda, Butte, Calaveras, Contra Costa, Glenn, Imperial, Kern, Los Angeles, Merced, Monterey, Marin, Orange, Riverside, Sacramento, Santa Barbara, San Benito, San Luis Obispo	Coastal salt marsh, valley grassland, wet riparian	Jul-Oct	0-500m	Not observed by Rincon botanists, but previously identified by UCSB researchers onsite.
Thelypteris puberula var. *sonorensis* (Sonoran maiden fern)			2.2	LR	Los Angeles, Riverside, Santa Barbara, San Bernardino, Arizona, Baja California, Sonora - Mexico	Meadows and seeps (seeps and streams)	Jan-Sep	50-610m	NE. Not observed during surveys.

Table 2.1-1 List of Special-Status Vascular Plant Species with Potential to Occur on the More Mesa Study Area

Scientific Name (Common Name)	Status[1]				County Geographic Range	Natural Communities	Blooming Period	Elevation Range	Occurrence
	Fed	State	CNPS	SBBG					
Thermopsis macrophyllum (Santa Ynez false lupine)		R	1B.3	LR	Santa Barbara	Chaparral (sandy, granitic, disturbed areas)	Apr-Jun	425-1400m	NE. Not observed during surveys. Typically know from higher elevations in the Santa Ynez Mountains.
Zannichellia palustris (horned pondweed)					Alameda, Butte, Contra Costa, Colusa, Glenn, Imperial, Inyo, Kern, Lake, Lassen, Los Angeles, Mendocino, Merced, Mono, Monterey, Modoc, Marin, Napa, Orange, Riverside, Santa Barbara, San Bernardino, San Benito, Santa Clara, Santa Cruz, San Diego, San Francisco, Shasta, Siskiyou, San Joaquin, San Luis Obispo, San Mateo, Solano, Sonoma, Tehama, Tuolumne, Ventura	Marshes and swamps (freshwater)	NP[2]	0-2200m	NE. Observed in Atascadero Creek during 1982 study, but not relocated during this investigation. Suitable habitat likely restricted to the north outside the study area.

[1] *Status Codes:*
<u>Federal</u>
E = Endangered
<u>State</u>
E = Endangered
T = Threatened
R = Rare

<u>SBBG - Santa Barbara Botanic Garden</u>
LR = Locally rare

[2] *NP = Not published*

<u>CNPS - California Native Plant Society</u>
1A = Presumed extinct in California
1B.1 = Rare or endangered in California and elsewhere; seriously endangered in California (over 80% of occurrences threatened/high degree and immediacy of threat)
1B.2 = Rare or endangered in California and elsewhere; fairly endangered in California (20-80% occurrences threatened)
1B.3 = Rare or endangered in California and elsewhere; not very endangered in California (<20% of occurrences threatened or no current threats known)
2.2 = Rare or endangered in California, but more common elsewhere; fairly endangered in California (20-80% occurrences threatened)
3 = More information needed - a review list
3.2 = More information needed - a review list; fairly endangered in California (20-80% occurrences threatened) 4.2 = a watch list, limited distribution and fairly endangered in California

<u>Occurrence:</u> O = observed by Rincon Consultants; NE = Not expected to occur due to unsuitable habitats, elevations, soils, species' regional distribution or likelihood that it would have been observed during the surveys

Special Status Plant Location Map

Figure 2.1-1

The locally rare taxon Lemmon's phalaris (*Phalaris lemmonii*), which was previously recorded in vernal pool habitat in the southeast corner of the study area, was not relocated during the course of the 2008 floristic inventory. Similarly, other species observed previously on the More Mesa study area were not relocated onsite, including the locally uncommon taxa water pygmy weed (*Crassula aquatica*), bur-reed (*Sparganium eurycarpum*), annual water aster (*Symphyotrichum subulatum* var. *ligulatum*), and horned pondweed (*Zannichellia palustris*). Another interesting native species, South Coast branching phacelia (*Phacelia ramosissima* var. *austrolitoralis*), was also not relocated during the study, potentially as a result of mis-identification of *Phacelia tanacetifolia* in 1982 as the rarer taxon in the vicinity of the coastal bluff. It is likely that the aquatic horned pondweed was not relocated because this current investigation was limited to the study area and did not include Atascadero Creek. It is possible that the other taxa listed above were not detected due to edaphic and/or climatic factors that limited vegetative growth, hydrologic input and/or reproduction in 2008-2009. These plants may also occur outside the current study area and so were not detected. Extirpation caused by encroachment of non-native plants, physical harm from wildlife and/or people or other factors may have inhibited the relocation of these species from the site. While further investigation would be of interest, these species are not special status species, and therefore, additional surveys to re-locate their occurrences within the study area are not of critical importance to support land use planning efforts at this time.

Of interest, four native species observed on-site (*Gilia tricolor*, *Lasthenia californica*, *Layia platyglossa*, and *Phacelia grandiflora*) appear to be introduced species, possibly from a seed mix applied to a recent wildfire area in the northwest quadrant of the site. No previous records of these species occur for the study area, and given that these species occurred with non-native plants such as Icelandic poppy (*Papaver nudicaule*) and sweet alyssum (*Lobularia maritima*) as well as the size and gestalt of the specimens observed, they were determined to be horticultural varieties.

Forty-eight of the 88 non-native species (26.5% of the total taxa) detected on the study area are recognized as invasive to some degree by the California Invasive Plant Council (Cal-IPC). Further, six of these species are listed as noxious weeds by the California Department of Food and Agriculture (CDFA), including: Italian thistle (*Carduus pycnocephalus*), field bindweed (*Convolvulus arvensis*), Bermuda grass (*Cynodon dactylon*), alkali mallow (*Malvella leprosa*), Kikuyu grass (*Pennisetum clandestinum*), and Russian thistle (*Salsola tragus*). One of these species, Kikuyu grass, is listed as a noxious weed by the U.S. Department of Agriculture (USDA). An additional five non-native plants are found on the mesa that are categorized by the Cal-IPC as having "severe ecological impacts on physical processes, plant and animal communities, and vegetation structure" (i.e., taxa with a *High* rating: red brome [*Bromus madritensis* ssp. *rubens*], hottentot fig [*Carpobrotus edulis*], pampas grass [*Cortaderia jubata*], fennel [*Foeniculum vulgare*], and Himalayan blackberry [*Rubus discolor*]). These eleven plants should be targeted for removal during the course of future land management and/or project development decision-making processes.

2.1.4 COMPARISON WITH 1982 STUDY

The 1982 study identified 195 species, including 134 genera in 51 families. Based on field observations at that time, distinct areas were identified as having different numbers and proportions (i.e., cover) of native species. Areas such as the northern and central drainage basins (please refer to Figure 2.3-1 for drainage feature identification) contained a greater number and relative cover of native species than other areas, such as the west mesa. The overall pattern of plant biodiversity and native plant species cover reported in 1982 was similar to the conditions exhibited on the study area in 2008-2009 with the exception of the spread of Harding grass throughout the site. Several new species were added to the list, most notably lemonade berry (*Rhus integrifolia*) and Southern California black walnut (*Juglans californica* var. *californica*).

The most noticeable changes in plant biodiversity and native species cover between 1982 and present are the absence of the aforementioned, previously observed locally uncommon plant taxa and that More Mesa appears to be undergoing further colonization of Harding grass. While mapping technologies have changed over the course of the last 27 years, the distribution of Harding grass throughout the site, especially apparent increased colonization of the western mesa, has been significant. While the west mesa does not support the overall density of Harding grass as observed on the more clay rich soils of the east mesa, it is increasing in areal cover compared to that documented in the 1982 study. Moreover, this non-native grass was observed dominating seasonal wetland habitat in a number of areas throughout the eastern study area. Of premiere importance, is the potential for this species to further encroach upon the vernal pool in the southeast corner of the study area. Harding grass already surrounds the vernal pool, limiting the extent of native vernal pool species in this area. The dominance of Harding grass in this portion of the study area may be a factor contributing to the apparent disappearance of Lemmon's phalaris from the study area.

The dominant plant community of the mesa consists of grassland habitat, which consists primarily of introduced perennial grassland dominated by Harding grass. Areas of annual grassland are present where seasonal mowing occurs along trails and in the western portion of the site on more well-drained soils containing less clay compared to the eastern mesa. The years of human influence on the study area have reduced the native composition considerably compared to other marine terraces dominated by native grasses and forbs north of Point Conception that comprise the classic Coastal Terrace Prairie described by Holland (1986). While small patches of grassland dominated by native species such as purple needlegrass (*Nassella pulchra*), California brome (*Bromus carinatus*), and meadow barley (*Hordeum brachyantherum*) exist on slopes and along drainages within the study area, the past and present anthropogenic forces (i.e., farming, grazing, disking, etc) introduced Harding grass and various Mediterranean annual grasses to the site and facilitated these non-native species colonization and persistence across the site.

2.2 PLANT COMMUNITIES

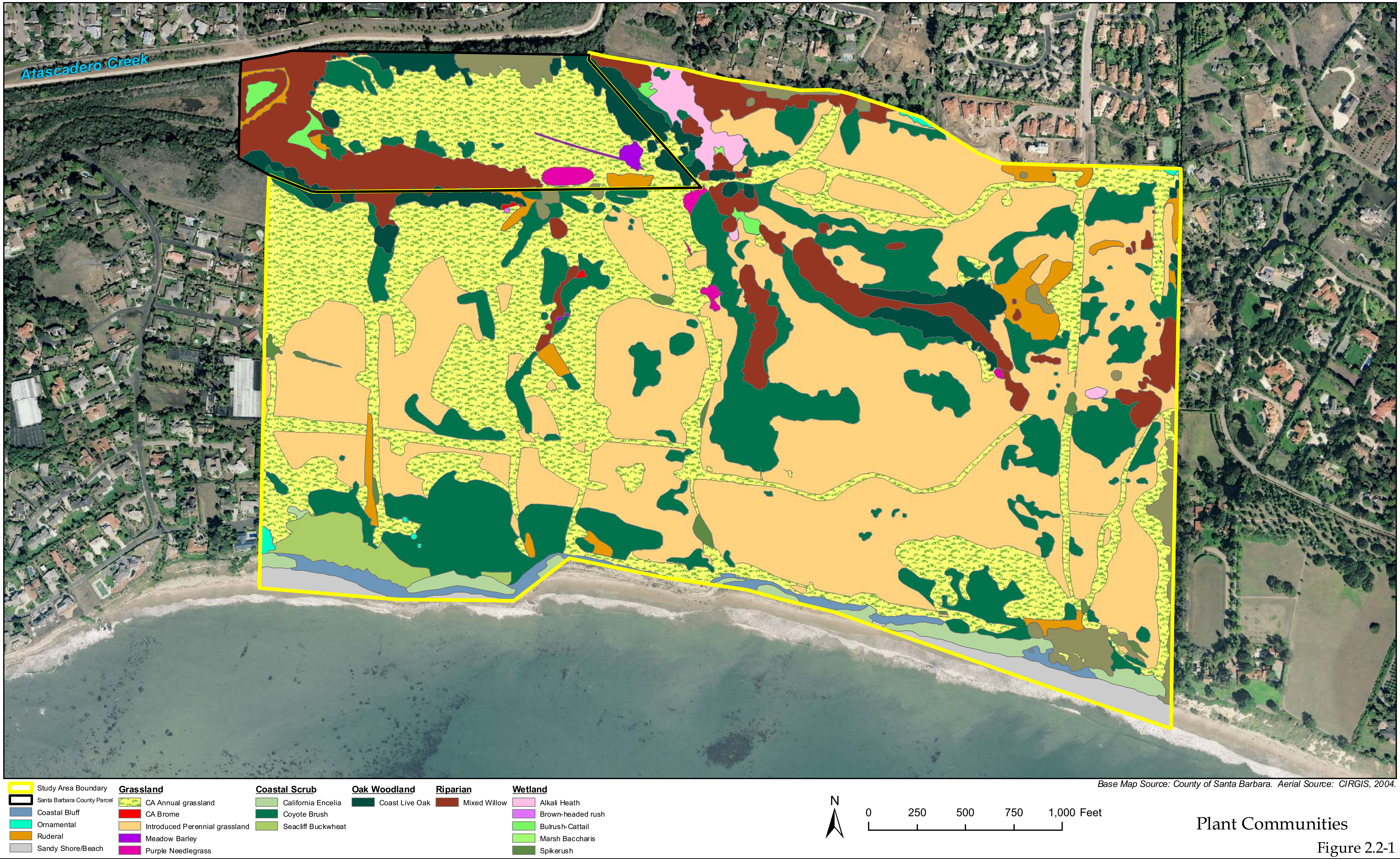
2.2.1 INTRODUCTION

Plant communities are dynamic assemblages of plants that interact among themselves and their environment within space and time continuums. Some communities are well defined and distinct while others are not. A relatively sharp boundary exists in some instances, but in most locales a wide transition area occurs where scattered shrubs and herbaceous species mix. Spatial boundaries between plant communities are abrupt only where environmental features change sharply (i.e., between aquatic and terrestrial habitats). Typically, plant communities change in response to an environmental gradient, making it difficult to delineate them precisely on a map. Another complicating factor in vegetation analyses and mapping efforts is that plant communities are not static, but change through time in response to both natural and human induced environmental changes. This potential for change has driven the purpose of this study, which is to survey the existing vegetation and flora and compare the current existing conditions onsite with those documented in 1982 as part of the More Mesa Biological Resources Study prepared by UCSB's Environmental Research Team.

2.2.2 METHODOLOGY

General Vegetation Classification and Mapping

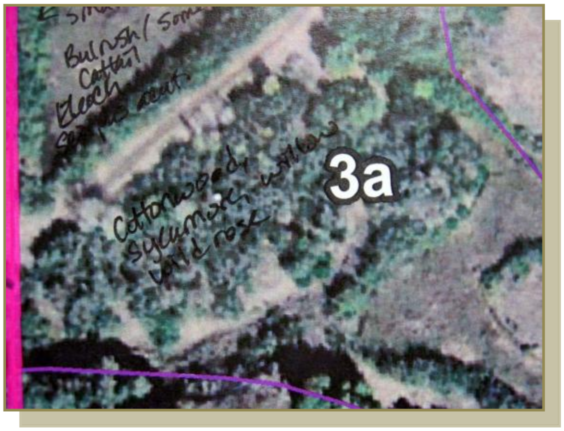
Rincon botanists delineated the boundaries of distinct vegetation, or habitat, types based on plant species dominance during the course of the floristic inventory. The plant communities were classified within the study area using the Sawyer and Keeler-Wolf classification system (1995). The study area for plant communities included the More Mesa property and the adjacent County-owned parcel for a total of 300 acres. All plant communities were identified using floristically based plant series, and were cross-referenced with other vegetation classification systems for consistency. Robert F. Holland's



Plant Communities

Figure 2.2-1

Preliminary Description of Terrestrial Natural Communities of California (1986) was reviewed as the CNDDB still utilizes this vegetation classification system, and bases their identification of rare plant communities on this system.



Utilizing aerial photography (County of Santa Barbara, 2004; Google Earth, 2007; and Microsoft, 2008), Rincon botanists traversed the study area and mapped distinct vegetation units onto site specific aerial photographs (ranging in scale from 1"=125' to 1"=250') provided by the County of Santa Barbara (2004). Other aerial photographs were used to assist in mapping of plant communities, including undated imagery available online (Google Earth, 2008; Microsoft, 2008; and Terraserver.com, 2008). The topographic base map and previously mapped vegetation units included in the 1982 study were also reviewed to assist in our interpretation and classification of the onsite plant communities. Initially, the distinct vegetation signatures detected from the aerial photography were mapped on aerial photography of the study area. Subsequently, the entire study area was traversed to ground-truth and refine the vegetation associations within the survey area, and provide additional detail to the final plant community map included herein. Where dense vegetation or steep topography precluded direct access to an area (i.e., such as in several portions of drainages and along the coastal bluff), binoculars were used at select vantage points to identify species composition and assist with delineating the extent of a particular plant community unit. The vegetation polygons mapped in the field were then input to ArcGIS using an overlay of the aerial photograph.

Grassland Classification and Mapping

Botanical field work conducted throughout 2008-2009 provided the foundation for the grassland mapping effort as Rincon botanists traversed all areas of grassland habitat within the study area. The entire study area was walked on foot using a stratified sampling method. Distinct changes in grassland habitat from areas dominated by Harding grass to those areas containing a primarily annual plant cover were recorded on field aerial photographs and in select areas, were delineated using a GPS unit. These areas were later revisited to fully characterize the vegetation composition. On June 4, 2008, surveys of representative native and non-native grassland patches collected percent areal cover data by employing line transect intercept methods as described by Bonham (1992) and Daubenmire et al. (1968). In addition, ground-truthing efforts extended into Spring 2009 to help characterize the extent of plant composition and capture changes in annual grass distribution between the seasons. Six line transects were established within the study area in areas identified as native, non-native annual and non-native (or introduced) perennial grasslands to provide detailed information regarding the plant composition. Please refer to Figure 2.2-2, the *Grassland Map* that illustrates the occurrence of the various grassland types on the study area as well as the location of each transect. Appendix B provides the data collected during the field effort in tabular form.

Grassland habitat on More Mesa was identified and mapped using the Sawyer and Keeler-Wolf vegetation series classification system. Areas of native grassland were identified where native grass species and their typical associate species comprised a minimum of 10% of the total aerial cover. Every patch of native grassland habitat equal to or greater than 100 square feet in size was delineated using both a GPS unit and recorded onto site specific aerial photographs used during the field surveys.

Plant community mapping surveys were conducted throughout the spring and summer months to ensure optimal detection and identification of native species, both annual and perennial. Grassland mapping surveys were further refined on June 4, 2008 during the line transect intercept data collection to evaluate percent cover of native grasses in the patches previously mapped onsite. Because of the small size of the native grassland series encountered at the site, the line transects were limited to 100 feet in length, which was deemed adequate to identify the dominant constituents within these small native grassland areas. In 3 of the 6 transects, 100 feet approached the entire length of the identified grassland polygon.

Subsequent surveys in the summer of 2008 and spring of 2009 confirmed the polygons on the plant community map represented the extent of grass dominated habitat.

2.2.3 RESULTS

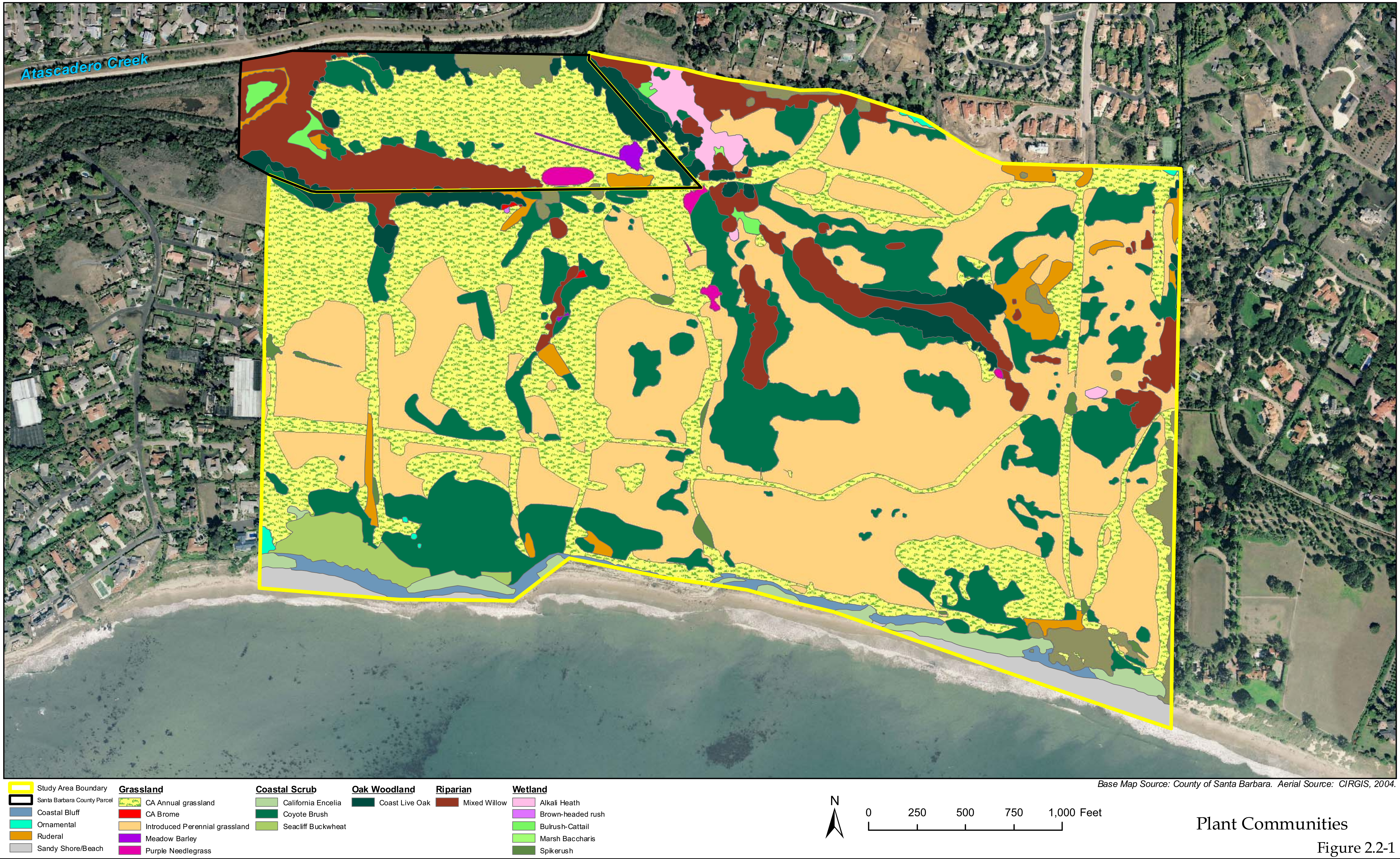
Six general habitat types comprised of 17 distinct vegetation series were mapped in the study area. In addition, areas of sandy shore/beach, coastal bluff and ruderal (or disturbed) areas were identified and their locations are illustrated on Figure 2.2-1. The six more generalized vegetation or habitat types include: 1) grassland; 2) coastal scrub; 3) oak woodland; 4) riparian; 5) wetland; and 6) ornamental. Specific grassland areas are shown on Figure 2.2-2. The following details the plant communities observed in the study area during the 2008 investigation. Most series identified correspond to the descriptions provided by Sawyer and Keeler-Wolf (1995). However, some modifications were made to more accurately describe the botanic associations observed within the study area. Each series was cross-walked with Robert F. Holland's *Preliminary Descriptions of the Terrestrial Natural Communities of California* (1986) for consistency. Wetland types were further classified using Cowardin's (1979) *Classification of Wetlands and Deepwater Habitats of the United States*. Table 2.2-1 indicates the acreage distribution of mapped plant communities within the study area and the County parcel.

Table 2.2-1 Mapped Plant Communities in Study Area

Plant Community (Series)	Acreage		
	Subject Property	Santa Barbara County Parcel	Total
California Annual Grassland	64.81	15.21	80.02
California Brome	0.09	0	0.09
Introduced Perennial Grassland	105.38	0	105.38
Meadow Barley	0.03	0.37	0.40
Purple Needlegrass	0.43	0.49	0.92
California Encelia	3.85	0	3.85
Coyote Brush	46.22	1.96	48.18
Seacliff Buckwheat	3.38	0	3.38
Coast Live Oak	6.28	3.56	9.84
Mixed Willow	12.25	8.92	21.17
Alkali Heath	2.11	0	2.11
Brown-headed Rush	0.01	0	0.01
Bulrush-Cattail	0.31	0.71	1.02
Marsh Baccharis	0.04	0	0.04
Spikerush	0.89	0	0.89
Coastal Bluff	3.40	0	3.40
Sandy Shore	4.57	0	4.57
Ornamental (includes Eucalyptus)	4.91	1.34	6.25
Ruderal	4.62	0.74	5.36
Total	***263.58***	***33.28***	***296.86***

Grassland

The dominant plant community on More Mesa is grassland, which totals 186.8 acres of the 300 acre study area (170.74 acres on the study area and 16.07 acres on the County parcel). Grassland occurs throughout the mesa terraces and grades into riparian and wetland habitat in topographic low areas as well as in the onsite ravines. In addition, grass-dominated habitat transitions into coastal scrub type communities in the southern portion of the site where soils are sandy and ocean influences are strongest. Under the grassland category, five distinct vegetation series were delineated on the site:



Base Map Source: County of Santa Barbara. Aerial Source: CIRGIS, 2004.

Plant Communities

Figure 2.2-1

- **California Annual Grassland.** This vegetation series corresponds to the Non-native Grassland (Element Code 42200) habitat type described by Holland (1986). Associate species included Mediterranean barley (*Hordeum marinum* ssp. *gussoneanum*), various bromes (*Bromus diandrus*, *B. hordeaceus*, and *B. madritensis* ssp. *rubens*), Italian ryegrass (*Lolium perenne* ssp. *multiflorum*), storksbill (*Erodium botrys*), wild oats (*Avena barbata*), English plantain (*Plantago lanceolata*), and cat's ear (*Hypochaeris glabra*). This series covers 80.02 acres of the study area, and was observed throughout the site along foot trails on the eastern mesa, and dominated sandy soil areas in the southeast portion of the study area. It was also observed as the dominant herbaceous plant association in the western mesa.

- **California Brome (*Bromus carinatus* var. *carinatus*).** The California brome series has not been previously described by Sawyer and Keeler-Wolf, nor was it identified by Holland as a specific habitat type. It most closely represents a component of the Coastal Terrace Prairie (Element Code 41000) described by Holland, except that it is a nearly pure stand of California brome. Associate species included purple needlegrass (*Nassella pulchra*), meadow barley, and coyote brush (*Baccharis pilularis*). California brome was observed in scattered areas of the site. One occurrence was observed on the eastern slope above Drainage A3 adjacent to a mixed willow area and another was observed in the north-central portion of the study area on the western slope of Drainage B near the old railroad cut. This latter occurrence was observed in an area dominated by purple needlegrass, and therefore was included in the purple needlegrass series. Total California brome dominated grassland within the study area totaled 0.09 acre.

- **Introduced Perennial Grassland.** This series described by Sawyer and Keeler-Wolf (1995) is not described by Holland (1986), but corresponds to Holland's Non-Native Grassland habitat (Element Code 42200) with the exception that it is a perennial bunchgrass dominated grassland. The introduced perennial grassland series is dominated by Harding grass (*Phalaris aquatica*), with Harding grass being the sole dominant in many areas of the study area. On the east mesa, it has formed dense mats that excludes other species. In upland areas on the terraces and slopes of the site, associate species included fennel (*Foeniculum vulgare*), geranium (*Geranium carolinianum*), scarlet pimpernel (*Anagallis arvensis*), and coyote brush. On the fine sandy loam soils of the west mesa, Harding grass dominated grassland occurs in patches and at lower densities compared to the denser clay soils of the east mesa. This species also occurred within topographic depressions and drainage basins onsite in seasonally wet soils. In these instances, associate species changed and included facultative species (i.e., species that typically occur in wetlands and uplands at equal frequency) such as Mediterranean barley and Italian ryegrass, and facultative wetland (i.e., species that typically occur in wetlands) species such as curly dock. Total area of the introduced perennial grassland series onsite is 105.38 acres.

- **Meadow Barley (*Hordeum brachyantherum*).** This series is not described by Sawyer and Keeler-Wolf (1995) or Holland (1986). It generally corresponds to Holland's Coastal Terrace Prairie habitat type (Element Code 41100). It covers 0.40 acre of the study area, and was observed in two distinct locations onsite. On the County parcel, meadow barley formed the dominant cover in the southeast corner within the California Annual Grassland series, just upslope from oak woodland on the western slopes of the lower reach of Drainage Area B (please refer to Figure 2.3-1, the Wetland Delineation Map). Another small meadow barley occurrence, or patch, was mapped on the eastern slope of Drainage A3 in the central portion of the site. Associate species included wild oats, Italian thistle (*Carduus pycnocephalus*), Italian ryegrass, Mediterranean barley, and ripgut brome.

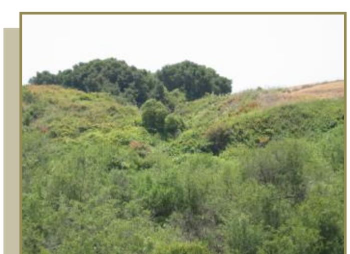
- **Purple needlegrass.** Purple needlegrass series onsite is consistent with Sawyer and Keeler-Wolf's description included in *A Manual of California Vegetation* (1995). It also corresponds to the Valley Needlegrass Grassland (Element Code 42110) and loosely to the Coastal Terrace Prairie habitat types described by Holland (1986). It was observed in five distinct locations within the study area on the upper slopes of drainages on the east mesa (please refer to Figure 2.2-1). It covered 0.92 acre of the study area. A large occurrence of purple needlegrass dominated grassland was mapped in the southern portion of the County parcel on a south-facing slope above the old railroad cut. Associate species included California brome, wild oats, various bromes, winecup clarkia (*Clarkia purpurea*), and narrow-leaved butterfly weed (*Asclepias fascicularis*).

Coastal Scrub

Coastal scrub communities occur throughout the study area, and are most prevalent along drainage features and the coastal bluff within the study area. Coastal scrub habitat types totaled 56.18 acres of the study area. The coastal scrub habitat was comprised of three distinct series, including:

- **California Encelia (*Encelia californica*).** This vegetation series most closely resembles the Southern Coastal Bluff Scrub (Element Code 31200) described by Holland (1986). Nearly pure stands of California Encelia were observed along the coastal bluff in the southern portion of the study area. The California Encelia series transitioned into the coyote brush series and seacliff buckwheat series throughout this area. In the southeastern corner of the site an area of California sagebrush (*Artemisia californica*) was observed immediately adjacent to California Encelia shrubs and was included in this series. Total area dominated by California Encelia is 3.85 acres.

- **Coyote Brush (*Baccharis pilularis*).** Coyote brush is a common component of many plant communities, and areas of the site where this species formed the dominant cover most closely correspond to a combination of Southern Coastal Bluff Scrub (Element Code 31200), Venturan Coastal Sage Scrub (Element Code 32300) and Central (Lucian) Coastal Scrub (Element Code 32200) as described by Holland (1986). This series was observed in varying densities of pure and mixed stands of coyote brush along drainages and on the terraces of the study area. Fennel, an introduced invasive plant, was observed as a common associate on the drainage slopes. A large occurrence of coyote brush was mapped in the southeastern portion of the site in and adjacent to the sandy soils associated with an uplifted sand dune. The coyote brush series transitioned into introduced perennial grassland dominated by Harding grass throughout the site as well as the California annual grassland series in the western portion of the study area. Total area dominated by coyote brush is 48.18 acres.



- **Seacliff buckwheat (*Eriogonum parviflorum*).** This vegetation series corresponds to the Southern Dune Scrub (Element Code 21330) described by Holland (1986). It was observed along the coastal bluff in the southern portion of the study area, primarily in the southwest corner of the site on the stabilized sand dune. Associate species included California croton (*Croton californica*), ripgut brome, dune primrose (*Camissonia cheiranthifolia*), and tansy phacelia (*Phacelia tanacetifolia*). Total area of seacliff buckwheat dominated habitat is 3.38 acre.

Oak Woodland

The Coast live oak series corresponds to the Coast Live Oak Woodland (Element Code 71160) described by Holland (1986). The evergreen coast live oak (*Quercus agrifolia*) was the dominant species in this plant community, and corresponds to the Coast Live Oak Series described by Sawyer and Keeler-Wolf (1995). This vegetation series covered 9.84 acres of the study area and is primarily confined to north-facing slopes and drainage ravines on the northern portion of the site where soil moisture and water availability are higher than the adjacent terraces. The understory was composed primarily of dense leaf litter, but in more open canopy areas contained typical understory species such as California blackberry (*Rubus ursinus*), poison oak (*Toxicodendron diversilobum*), and bedstraw (*Galium aparine*).

Riparian

Riparian habitat present onsite corresponds to the Mixed Willow Series described by Sawyer and Keeler-Wolf (1995). Holland (1986) described this habitat type in the South Coast region as both Southern Willow Scrub (Element Code 63320) and Southern Arroyo Willow Riparian Forest (Element Code 61320) depending upon the height and structure of the willow trees/shrubs present. Riparian habitat in the South Coast region further intergrades into the Central Coast Arroyo Willow Riparian Forest in the Point Conception area north to the Monterey and San Francisco Bay regions. Natural drainage features across the northern and eastern portion of the site are dominated by a mixture of arroyo willow (*Salix lasiolepis*) and red willow (*S. laevigata*), with arroyo willow being the most dominant. Pacific willow (*S. lucida* ssp. *lasiandra*) appears to become an associate of this habitat type in the northern portion of the study area where water availability is higher in the vicinity of Atascadero Creek. Other associate species included western sycamore (*Platanus racemosa*) and black cottonwood (*Populus balsamifera* ssp. *trichocarpa*) in this area and in Drainage B. Also observed in areas mapped as the Mixed Willow Series are rare occurrences of box elder (*Acer negundo*), black walnut (*Juglans hindsii* ssp. *californica*), and coast live oak. Isolated occurrences of *Eucalyptus* species were observed in the Mixed Willow Series and are mapped separately. The Mixed Willow Series occupies 21.17 acres of the site.

Wetland

Five vegetation series were identified within the study area as wetland plant communities. In addition, select areas within three grassland vegetation series, including California annual grassland, introduced perennial grassland and meadow barley, are wetlands because the dominants are identified as facultative and facultative wetland species (Reed, 1988). Wetlands occur primarily within natural drainage features that traverse the site, however, small isolated wetlands are present along trails and in topographic low areas, primarily in grassland habitat. In addition, several micro-topographic depressional areas were observed in the southeastern corner of the site that contain seasonally ponded water. One location in particular contains a suite of species typically associated with vernal pool habitat in the South Coast Region. These areas were delineated based on the extent of wetland plant composition, ponded water, and hydric soils. A total of 4.07 acres of habitat dominated by wetland plants were identified onsite (please note that this does not include areas dominated by grasses as they were included in the grassland habitat descriptions above, and similarly does not include willow-dominated habitat included in the above riparian discussion). Please refer to Section 2.3 and Figure 2.3-1 for further information regarding onsite wetlands, including a discussion of state and federal regulatory status. The following wetland plant communities were observed onsite:

- **Alkali Heath (*Frankenia salina*).** This vegetation series corresponds to the Southern Coastal Salt Marsh (Element Code 52120) and Coastal Brackish Marsh (Element Code 52200) habitat types described by Holland (1986). Alkali heath series were observed in Drainage Area B and were associated with a historic reach of the Goleta Slough and Atascadero Creek. An additional area of alkali heath was observed in the central-eastern portion of the study area where past grading to create an earthen berm impounds flows in the upper reach of Drainage B3. Associate species observed in this vegetation series included bulrush (*Scirpus maritimus*), salt grass (*Distichlis spicata*), and alkali mallow (*Malvella leprosa*). Total area of alkali heath dominated habitat in the study area is 2.11 acres.

- **Brown-headed Rush (*Juncus phaeocephalus*).** The brown-headed rush series corresponds to the Vernal Marsh (52500) and Freshwater Seep (45400) habitat types described by Holland (1986). Three distinct areas dominated by brown-headed rush were observed in the northwestern portion of the study area adjacent to Drainage A2 (please refer to Figures 2.2-1 and 2.3-1). Brown-headed rush occurs within and adjacent to the drainage channel in this area, and associates include coyote brush, Mediterranean barley and Italian ryegrass. Brown headed rush dominated area of the study area totaled 0.01 acre.

- **Bulrush-Cattail (*Scirpus californica – Typha latifolia*).** Holland's (1986) Coastal and Valley Freshwater Marsh (Element Code 52410) and Coastal Brackish Marsh (Element Code 52200) habitat type descriptions most closely correspond to the onsite Bulrush-Cattail series. It is found in lower reaches of both Drainage Areas A and B where surface water accumulates for a sufficient duration to support this wetland type. The largest occurrence was observed in the lower reach of Drainage A in the basin/pond area constructed adjacent to Atascadero Creek. The bulrush-cattail series within the study area totaled 1.02 acres.

- **Marsh Baccharis (*Baccharis douglasii*).** The marsh baccharis series mapped on the study area corresponds to the Coastal Brackish Marsh (Element Code 52200) and Coastal and Valley Freshwater Marsh described by Holland (1986). It also transitions into Holland's (1986) Southern Willow Scrub (Element Code 63320). Marsh baccharis was the sole dominant in this vegetation series and is found in one location in the basin floor in the lower reach of Drainage Area B downstream of the Southern California Gas Company's pipeline crossing on the perimeter of an arroyo willow (*Salix lasiolepis*) patch. A total of 0.04 acre of marsh baccharis dominated habitat was observed within the study area.

- **Spikerush (*Eleocharis acicularis* and *E. macrostachya*).** Within the study area, this vegetation series most closely corresponds to a combination of Holland habitat descriptions, including Vernal Marsh (52500), Coastal and Valley Freshwater Marsh (52410), and Freshwater Seep (45400 in part). Spikerush is also a dominant associate in the vernal pool in the southeastern corner of the site; however, vernal pools of the South Coast region are not described by Holland (1986). More recently, vernal pools in the South Coast region have been documented and included in the DFG's maintained CNDDB, and identified as Southern Vernal Pool habitat. The spikerush series was observed throughout the study area within drainage channel areas and localized micro-topographic relief areas where water ponds for sufficient duration during the growing season (during normal rainfall years) to support this species. Common associates in this vegetation series include Mediterranean barley, Italian ryegrass, curly dock

(*Rumex crispus*), and locally uncommon species such as coast allocarya (*Plagiobothrys undulatus*) and coyote thistle (*Eryngium vaseyi*). Total spikerush dominated habitat observed within the study area is 0.89 acre.

Meadow barley is a facultative wetland species, and therefore areas dominated (i.e., greater than 50% areal cover) by this grass meet the federal and state wetland vegetation criteria. While it is also included as a wetland, area cover calculations are included in the grassland discussion above. Similarly, areas within topographic depressions and in drainage features dominated by the facultative species Mediterranean barley, Italian ryegrass and Harding grass can also meet the federal and state wetland definitions based on vegetation, but were included in the California Annual Grassland and Introduced Perennial Grassland discussions above. Furthermore, willow dominated areas of the site were described under the riparian habitat discussion above, and although this series is dominated by various wetland species, was not included in this wetland discussion due to organization of the section. Please refer to Section 2.3 for a detailed discussion of mapped wetlands within the study area.

Coastal Bluff

The coastal bluff was mapped separately from the coastal scrub plant communities (i.e., California Encelia and seacliff buckwheat series) primarily based on the extent of exposed bare rock and sands. However, patches of native bluff scrub vegetation were still present. Species such as California Encelia, cliff aster or dandelion (*Malacothrix saxatilis* var. *saxatilis*), iceplant (*Carpobrotus* spp.), and various grasses (i.e., *Bromus diandrus*, *Distichlis spicata*, *Vulpia* spp., etc.) were observed growing on the coastal bluff within the study area. In addition, an occurrence of giant reed (*Arundo donax*) was observed in the southeast portion of the site at the toe of the bluff in what appears to be a seasonally wet area. Coastal Bluff was mapped on 3.4 acres of the study area.

Sandy Shore

This portion of the site was generally devoid of vascular plant species, and was composed of bare sands and rock. Neither Holland (1986) or Sawyer and Keeler-Wolf (1995) describe this habitat type observed within the study area. While areas mapped as sandy shore within the study area are primarily bare sand and rock devoid of vegetation, small pockets of vegetation occur in areas just landward of the high tide line. Species such as sea rocket (*Cakile maritima*), salt grass, Russian thistle (*Salsola tragus*), and New Zealand spinach (*Tetragonia tetragonioides*) were observed between the high tide line and toe of the bluff. High tides and surf are the important limiting factors regulating the distribution of vegetation in this portion of the site. Approximately 4.57 acres of the study area were mapped as Sandy Shore.

Ornamental

Human presence on the More Mesa study area has contributed significantly to the plant composition and distribution across the site. Areas dominated by horticultural specimens were evident along the perimeters of the More Mesa study area where residences either abut the site, or where trees were planted and have successfully naturalized onsite. Ornamental vegetation consisting of blue gum (*Eucalyptus globulus*) and other species of *Eucalyptus* were observed along the northern study area boundary within the County's parcel along the Atascadero Creek interface as well as individual occurrences and as windrows along the eastern boundary. Areas of ornamental vegetation were also observed in the northeastern corner, along the eastern border with the Hope Ranch, and in the southeastern corner on the coastal bluff near the vernal pool (please refer to Figures 2.2-1 and 2.3-1). In addition, ornamental vegetation has successfully established along the margins of the site at the interface with surrounding developed areas, and three Monterey cypress trees (*Cupressus macrocarpa*) were observed just east of a highly travelled north-south trending foot trail. The ornamental plant community totals 6.25 acres of the study area.

Ruderal

Ruderal or disturbed areas are not considered habitat types under Holland's (1986) or Sawyer and Keeler-Wolf's (1995) vegetation classification systems. Ruderal or disturbed habitat was present in select portions of the site, mostly in areas of past soil disturbance as well as along trails with high foot traffic. This habitat type was mapped on 5.36 acres of the overall 300-acre plant mapping study area. Ruderal habitat observed included old earthen berms along trails and old spoils piles dominated by non-native species such as wild radish (*Raphanus sativa*) and poison hemlock (*Conium maculatum*). Bare soil areas where historic or ongoing disturbance from soil erosion and foot traffic appears to suppress plant colonization and growth were also included in the ruderal habitat type.

Special Status Plant Communities

All wetland and riparian vegetation series, native grassland types and California Encelia and seacliff buckwheat series delineated on Figures 2.1-1 and 2.2-1 constitute special status plant communities because they are uncommon within the regional context of the study area or have been identified by state or federal resource agencies as relatively rare. The occurrence of locally uncommon plant taxa within the wetland plant communities (primarily the vernal pool in the southeast corner of the site) further supports the determination that the following plant communities merit special status:

Wetland Series

- Alkali heath;
- Brown-headed rush;
- Bulrush-cattail;
- California annual grassland in areas of topographic depressions dominated by Mediterranean barley and Italian ryegrass (see Figure 2.3-1 Wetland Delineation Map);
- Introduced perennial grassland in areas of topographic depressions and within natural drainage features dominated by Harding grass and identifiable as wetland;
- Marsh baccharis;
- Meadow barley;
- Mixed willow; and
- Spikerush.

Upland Series

- California brome;
- California Encelia;
- Coast live oak;
- Purple needlegrass; and
- Seacliff buckwheat.

Portions of the study area dominated by coyote brush immediately adjacent to seacliff buckwheat and California Encelia series (i.e., the ecotonal area) also constitute a special status plant community given its inclusion in the coastal bluff and stabilized coastal dune scrubs onsite. Drainage features onsite also are considered important features and are regulated by various state and federal resource agencies, including the CDFG, CCC, RWQCB, and USACE. Where coyote brush occurs along natural drainage features as the dominant vegetation series, it should also be treated as a plant community of special concern because it provides valuable protection (i.e., cover of the drainage feature and important soil binding properties minimizing soil erosion).

The numerous topographic depressions that occur across the mesa support periodic ponded water during the winter and spring months, and in many areas contain a predominance of hydrophytic plant species. The vernal pool in the southeast corner of the site is a prime example of a topographic depression that contains enough water during the growing season to support and maintain classic vernal pool habitat, including species such as coyote thistle, coast allocarya and Pacific foxtail. During the course of the spring 2008 floristic survey approximately 4-8 inches of water was observed in this feature. It did not contain ponded water during the winter of 2008 or spring of 2009.

Finally, any plant community supporting locally uncommon or special status plant taxa and any special status animal species should also be included in the special status plant communities on the study area and adequate protection afforded to ensure their continued existence.

2.2.4 COMPARISON WITH 1982 STUDY

Overall, the More Mesa study area is relatively similar in floristic and vegetation composition compared to the 1982 study, with the exception of the increased dominance and extension of Harding grass onto the western mesa. Soils and associated moisture regimes onsite continue to play an important role in the distribution of the plant communities within the study area. Much of the More Mesa marine terrace has a clay component that has allowed facultative species such as Harding grass to persist throughout the site. Even in the sandy soil areas an impenetrable clay layer appears to be present below 20 inches in the soil profile (USDA, 1972; Ferren et. al 1982; Rincon Consultants field observations), which has apparently promoted further colonization of Harding grass on the west mesa compared to the observations made in 1982. Increased moisture holding capacity of the clay soils and subsoil in areas of sandy surface layers may also support colonization of species such as coyote brush and fennel on drier slopes and terraces throughout the site. Without grazing pressure or another form of disturbance (i.e., mowing or burning), the presence of coyote brush in these areas may over time continue to facilitate type conversion of onsite grasslands to coastal scrub habitat.

Anthropogenic influence, including the historic farming and grazing of the site, also appears to have had a significant effect on the vegetation composition on the study area. Based on historic aerial photograph review, farming may have mixed upper soil layers, removed the native vegetation and provided a regular cycle of disturbance that promoted opportunistic species establishment. For example, soil investigations as part of the wetland delineation in areas mapped as Concepcion fine sandy loam 2-9% revealed a higher clay concentration than described for this soil mapping unit. This appears to be consistent with observations made by Ferren et al. in 1982. The higher clay concentrations exist throughout much of the site with the exception being the immediate coastal bluff area in the southern portion of the site, especially in the southwest corner, where marine sands have been wind-deposited.

2.3 WETLANDS

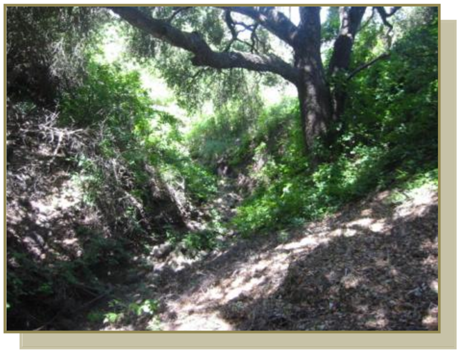
2.3.1 INTRODUCTION

Waters of the United States and State of California were delineated on the More Mesa study area to determine the location and extent of areas that meet the U.S. Army Corps of Engineers (Corps), California Coastal Commission (CCC), and County of Santa Barbara definitions of a wetland. In addition, Rincon also delineated the extent of California Department of Fish and Game (DFG) jurisdictional area onsite. It is noted that development in areas identified as jurisdictional "waters" would be subject to the permit requirements of the Corps under Section 404 of the Clean Water Act (CWA), CCC pursuant to California Coastal Act, and DFG pursuant to Section 1600 *et*. *seq*. of the California Fish and Game Code.

2.3.2 WATERS OF THE UNITED STATES AND STATE OF CALIFORNIA

Federal Regulatory Authority

The Corps under provisions of Section 10 of the Rivers and Harbors Act and Section 404 of the Clean Water Act has jurisdiction over "waters of the United States" and authorization to issue permits for the discharge of dredged or fill material into "waters of the U.S." "Waters of the U.S." are defined to include all waters subject to the ebb and flow of the tide, all interstate waters, all other waters (intrastate lakes, rivers, streams, mudflats, sandflats, playa lakes, natural ponds, seasonal drainage channels, etc.), all impoundments of waters otherwise defined as waters of the U.S., tributaries of waters otherwise defined as waters of the U.S., territorial seas, and wetlands adjacent to waters of the U.S. USACE jurisdictional limits are typically identified by the presence of an Ordinary High Water Mark (OHWM). The OHWM is the line on the shore or banks of a water course established by the fluctuations of water and indicated by physical characteristics such as a clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding area. The USACE defines wetlands as containing three parameters: hydrophytic vegetation, hydric soils, and wetland hydrology.



Waters generally not considered to be Corps-jurisdictional include non-tidal drainage and irrigation ditches excavated on dry land, artificially-irrigated areas, artificial lakes or ponds excavated on dry land used for irrigation or stock watering, small artificial water bodies such as swimming pools, and water filled depressions (51 Fed. Reg. 41, 217 1986). In addition, a Supreme Court ruling (South Waste Agency of North Cook County [SWANCC] vs. USACE, January 9, 2001) determined that the USACE exceeded its statutory authority by asserting CWA jurisdiction over "an abandoned sand and gravel pit in northern Illinois, which provides habitat for migratory birds." Based solely on the use of such waters by migratory birds, the Supreme Court's holding was strictly limited to waters that are "non-navigable, isolated, and intrastate."

The Supreme Court further addressed the extent of the Corps' jurisdiction in the consolidated cases Rapanos v. United States and Carabell v. United States (June 19, 2006), referred to as "Rapanos." In Rapanos, a sharply-divided Court issued multiple opinions, none of which garnered the support of a majority of Justices. This created substantial uncertainty as to which jurisdictional test should be used in routine jurisdictional determinations. The Ninth Circuit Court of Appeal, which encompasses California, answered this in Northern California River Watch v. City of Healdsburg (August 11, 2006). In this case, the Court held that Justice Kennedy's opinion in Rapanos provided the controlling rule of law. Under that rule, wetlands or other waters that are not navigable are subject to Corps jurisdiction if they have "a significant nexus to waters that are navigable in fact." As Justice Kennedy explained, whether a "significant nexus" exists in any given situation will need to be decided on a case-by-case basis, depending on site-specific circumstances. The U.S. Environmental Protection Agency (EPA) and Corps subsequently developed an instructional guidebook on how to apply these rulings for all future jurisdictional determinations (U.S. Army Corps of Engineers and U.S. Environmental Protection Agency 2007) as well as a memorandum providing guidance to implement the U.S. Supreme Court's decision in Rapanos (Grumbles and Woodley 2007).

Waters of the U.S. determined by Rincon to be under the jurisdiction of the EPA and Corps under the Clean Water Act conform to the instructional guidebook and memorandum providing guidance to implement the U.S. Supreme Court's decision in Rapanos. Delineated wetland features that are not adjacent to (i.e., bordering, contiguous, or neighboring) a traditional navigable water (TNW) or abutting a relatively permanent water (RPW) that is tributary to a TNW are not likely to be subject to federal jurisdiction and are thus determined to not be subject to federal jurisdiction. Each potential waters of the U.S. feature at the site was evaluated individually in accordance with this Rapanos guidance. Please note that the U.S. Supreme Court determined that jurisdictional waters of the U.S. are to be determined on a case-by-case basis, by the

Corps (and EPA), based on a determination of whether a particular wetland or "other water" has a "significant nexus" to a TNW.

This report describes the features on the approximately 265-acre More Mesa study area that exhibit the physical characteristics of wetlands or other waters and, therefore, documents the maximum areal extent of such features that may qualify as "waters of the United States" and be subject to Corps jurisdiction. In any event, the aforementioned federal rulings do not alter the extent of State jurisdiction over "waters of the State" (which are subject to CCC and Regional Water Quality Control Board [RWQCB] jurisdiction), or "rivers, lakes or streams" subject to CDFG jurisdiction. State regulatory authority over wetlands and other waters are discussed in the following section.

State Regulatory Authority

The CDFG has regulatory authority over work within rivers, lakes and streams on public, private and agricultural lands in the State of California pursuant to Fish and Game Code Section 1600 et. seq. Features that are regulated by the CDFG include all rivers, streams, or lakes including man-made watercourses with or without wetlands, if they contain a definable bed and bank and support fish or wildlife resources or contribute to that support. CDFG jurisdiction also extends to the outer drip-line of riparian vegetation associated with rivers, streams, and lakes. CDFG directly regulates wetland areas only to the extent that those wetlands are part of a river, stream or lake as defined above. Determining the limits of wetlands is not typically done pursuant to Section 1600 since the riparian vegetation associated with the rivers, streams or lakes is also typically included within CDFG jurisdiction. Riparian habitat includes willows, mulefat, and other vegetation typically associated with the banks of a stream or lake shoreline and, in most situations, wetlands associated with a stream or lake would fall within the limits of riparian habitat. Thus, defining the limits of CDFG jurisdiction based on riparian habitat will automatically include any wetland areas and may include additional areas that do not meet the Corps criteria for soils and/or hydrology (e.g., where riparian woodland canopy extends beyond the channel area of a stream away from frequently saturated soils).

With respect to wetlands, CDFG generally follows the recommendations of the U.S. Fish and Wildlife Service (USFWS); namely, that one or more positive indicators must be found for only one of the three wetland criteria (hydrophytic vegetation, hydric soil, and/or hydrology) to be considered a wetland. The California Fish and Game Commission concurred with the Fish and Game Department's recommendation to use the USFWS definition as the basis for wetland identification. The Commission determined that when all three wetland indicators (i.e., hydric soils, wetland vegetation, and hydrology) are present, the presumption of wetland existence is conclusive. Where less than three indicators are present, policy application is to be supported by the demonstrable use of wetland areas by wetland associated fish or wildlife resources, related biological activity, and wetland habitat values (CDFG, August 4, 1994, *Department of Fish and Game Recommended Wetland Definition, Mitigation Strategies, and Habitat Value*, http://www.fgc.ca.gov/policy/p4misc.asp#DEPARTMENT).

The CCC in partnership with coastal cities and counties, plans and regulates the use of land and water in the coastal zone. The Coastal Act includes specific policies (see Division 20 of the Public Resources Code) that address issues, including terrestrial and marine habitat protection. The policies of the Coastal Act constitute the statutory standards applied to planning and regulatory decisions made by the Commission and by local governments, pursuant to the Coastal Act. Because a CCC-approved Local Coastal Program is in place, the County of Santa Barbara issues its own permits for development within the coastal zone area under the County's jurisdiction.

The CCC, with the assistance of CDFG, is responsible for determining the presence of wetlands subject to regulation under the Coastal Act. As the primary wetland consultant to the CCC, the CDFG as stated above essentially relies on the USFWS wetland definition and classification system (Cowardin et al., 1979, *Classification of Wetlands and Deep Water Habitats of the United States*), with some minor changes in classification terminology, as the methodology for wetland determinations. The CDFG and the CCC require the presence of only one wetland parameter (e.g., hydrology, hydric soils, or hydrophytic vegetation) for an area to qualify as a wetland. Section 30121 of the California Coastal Act (1976), the statute governing the CCC, broadly defines wetlands as:

"Lands within the coastal zone which may be covered periodically or permanently with shallow water and include saltwater marshes, freshwater marshes, open or closed brackish water marshes, swamps, mudflats, or fens."

However, the CCC Administrative Regulations (Section 13577 (b)) provides a more explicit definition:

"Wetlands are lands where the water table is at, near, or above the land surface long enough to promote the formation of hydric soils or to support the growth of hydrophytes, and shall also include those types of wetlands where vegetation is lacking and soil is poorly developed or absent as a result of frequent or drastic fluctuations of surface water levels, wave action, water flow, turbidity or high concentrations of salt or other substance in the substrate. Such wetlands can be recognized by the presence of surface water or saturated substrate at some time during each year and their location within, or adjacent to, vegetated wetlands or deepwater habitats."

Local Regulatory Authority

As discussed in Section 1, the County of Santa Barbara regulates land use at the site through its LCP. The policies of the Coastal Plan, Goleta Community Plan and Coastal Act provide protection of all wetlands and vernal pools, not just those with high biological value. These policies do not distinguish between natural or man-made wetland/vernal pool habitats**.** Coastal Plan Policy 9-9 specifically regulates wetlands, and provides a definition of those so regulated:

A buffer strip, a minimum of 100 feet in width, shall be maintained in natural condition along the periphery of all wetlands. No permanent structures shall be permitted within the wetland or buffer area except structures of a minor nature, i.e., fences, or structures necessary to support the uses in Policy 9-10.

The upland limit of a wetland shall be defined as: 1) the boundary between land with predominantly hydrophytic cover and land with predominantly mesophytic or xerophytic cover; or 2) the boundary between soil that is predominantly hydric and soil that is predominantly nonhydric; or 3) in the case of wetlands without vegetation or soils, the boundary between land that is flooded or saturated at some time during years of normal precipitation and land that is not.

Where feasible, the outer boundary of the wetland buffer zone should be established at prominent and essentially permanent topographic or man-made features (such as bluffs, roads, etc.). In no case, however, shall such a boundary be closer than 100 feet from the upland extent of the wetland area, nor provide for a lesser degree of environmental protection than that otherwise required by the plan. The boundary definition shall not be construed to prohibit public trails within 100 feet of a wetland.

Criteria for Wetlands and Other Waters

Hydrophytic vegetation occurs in areas where frequency and duration of inundation and/or soil saturation exerts a primary controlling influence on plant species composition. Plant species are assigned a wetland indicator status according to the probability of occurrence in wetlands. More than fifty percent of the dominant plant species must have a wetland indicator status of Facultative, Facultative Wetland, or Obligate Wetland to meet the hydrophytic vegetation criterion. The U.S. Fish and Wildlife Service developed the *National List of Plant Species That Occur In Wetlands, Region 0* (Reed, 1988), which separates vascular plants into the following five basic categories based on plant species frequency of occurrence in wetlands:

- Obligate wetland (OBL). Occur almost always (estimated probability >99%) under natural conditions in wetlands.
- Facultative Wetland (FACW). Usually occur in wetlands (estimated probability 67%-99%), but occasionally found in non-wetlands.
- Facultative (FAC). Equally likely to occur in wetlands or non-wetlands (estimated probability 34%-66%).

- Facultative Upland (FACU). Usually occur in non-wetlands (estimated probability 67%-99%), but occasionally found in wetlands (estimated probability 1%-33%).
- Obligate Upland (UPL). May occur in wetlands in another region, but occur almost always (estimated probability >99%) under natural conditions in non-wetlands in the region specified.

For some FACW, FAC and FACU species, a plus (+) or minus (-) was designated to specify the higher or lower part of the frequency range for a particular indicator. An asterisk (*) was assigned to indicators from which limited ecological information was available during the review and compilation of Reed's 1988 list. The asterisk reflected a tentative assignment made with less confidence and data than the other indicator assignments. The USACE considers OBL, FACW and FAC species to be indicators of wetlands. An area is considered to have hydrophytic vegetation when greater than 50 percent of the dominant species in each vegetative stratum (tree, shrub, and herb) are assigned with these categories. Any species not appearing on the USFWS list is assumed to be an upland species, almost never occurring in wetlands (<1%). In addition, an area needs to contain at least 5% vegetative cover to be considered as a vegetated wetland.

Hydric soils occur in areas that are saturated and/or inundated for a sufficient duration during the growing season to develop anaerobic or reducing conditions. Sufficient duration cannot be defined due to the vast differences in chemistry and mineral composition in soils from site to site and region to region, but can be as short as two weeks during the growing season. Field indicators of hydric soils include, but are not limited to observation of redoximorphic features (e.g., concentrations of oxidized minerals such as iron) and detection of hydrogen sulphide gas. Documentation of a soil as hydric must be verified in the field.

Wetland hydrology typically occurs in areas subject to inundation and/or soil saturation with a frequency and duration long enough to cause the development of hydric soils and plant communities dominated by hydrophytic vegetation. If direct observation of wetland hydrology is not possible (as in seasonal wetlands) or records of wetland hydrology are not available (such as stream gauges), assessment of wetland hydrology is frequently supported by primary and secondary indicators such as surface soil cracks and drainage patterns, respectively.

Ordinary High Water Mark is the line on the shore or bank of an other waters feature that is established by fluctuations and/or flow of water. The USACE defines the lateral limits for other waters or non-wetlands waters to occur where the physical characteristics representing an OWHM are observed (33 CFR 328.3, 33 CFR 329.11, United States Army Corps of Engineers 2005). The OHWM is located through examination of physical characteristics such as a clear natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, and other appropriate physical characteristics that consider the nature of the surrounding area.

2.3.3 METHODOLOGY

The delineation of potential Corps "waters of the United States," Coastal Act wetlands, and CDFG jurisdictional areas on the study area was conducted on May 2 and 9, June 2, 4 and 5, and August 29, 2008 using the routine methodology as detailed in the *Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory 1987) and *Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (U.S. Army Corps of Engineers 2008). Additional site visits were conducted during the spring and summer 2008 as well as the late winter and spring of 2009 that aided the characterization of the extent of potential jurisdictional areas. The construction of roads and trails as well as in-channel impoundments and modifications have affected the site's natural hydrology, but because these features have been in place for many years and the site has been used as recreational open space for a number of years, the current circumstances are considered normal for the site.

The on-site natural drainage systems, which are all hydrologically connected to Atascadero Creek to the north, and topographic depressions on the marine terrace were the focus of the investigation. Site visits in late March 2008 and

February 2009 followed rain events, and assisted with direct observation of hydrology on the study area. All potential waters of the U.S. on the study area were mapped based on the presence of positive indicators for hydrophytic vegetation, hydric soils and wetland hydrology for wetlands and presence of an OHWM pursuant to Corps regulations (33 CFR 328.3 and 33 CFR 328.4) for other waters. Areas containing a predominance of wetland and riparian vegetation within a natural drainage feature were mapped as wetlands and other waters because all three wetland criterion were met and there was an observable OHWM. In many areas on the site, the extent of federal and state jurisdiction was identical; exceptions to this are detailed below.

Potential "waters" were delineated on a site-specific aerial photograph flown in 2004 and provided by the County of Santa Barbara. Data observation points were collected in areas of the site that represented potential "waters" which primarily consisted of areas that exhibited a dominance of hydrophytes, positive indicators for wetland hydrology or presence of an OHWM. The OHWM and areas of sediment deposition were used to identify the potential extent of federal and State jurisdiction. The CDFG jurisdiction was delineated based on the extent of an identifiable bed and bank, and in most areas was measured from top of bank to top of bank. In areas of adjacent or in-channel wetland and riparian vegetation, the extent of State jurisdiction extended to the outer canopy.

Specific data observation points were placed in the drainage and wetland features and adjacent upland areas to characterize the extent of federal, State, and County jurisdiction (i.e., identify the wetland edge and OHWM). Soil pits were excavated to a depth of 20 inches during the delineation, and in some instances an auger was used to assess soil structure up to 40 inches deep. Soils were not investigated in all areas of the site as dense vegetation in some portions of the site precluded access. Hydric soils were presumed present in areas dominated by Facultative Wetland and Obligate Wetland species that contained positive indicators of wetland hydrology (i.e., Data Points 16, 18, 20, 23, and 27). In other instances, hydric soils were presumed absent in areas that were dominated by upland species (i.e., Data Points 8, 15, 19, 22, and 50). In areas of dense vegetation that precluded direct access to the drainage feature, the wetland delineation was based on vegetation and the OHWM was extrapolated from up and downstream observations. For example, hydric soils were presumed present at Data Point 44 where arroyo willow, a Facultative Wetland species, forms a dense thicket precluding access within the drainage feature. State and County jurisdiction was identified based on the extent of the arroyo willow canopy, while the Corps' jurisdiction is limited to the estimated width of the OHWM within the channel. In contrast, hydric soils were presumed absent from upland areas dominated by coyote brush along the drainage feature (i.e., Data Point 34), and the area was identified as a non-wetland, waters of the U.S. delineated based on the extent of the OHWM.

Information recorded at each data point location included plant species composition (to determine the presence/absence of hydrophytic vegetation), presence/absence of indicators of wetland hydrology, and in areas containing potential wetland habitat, indicators of hydric soils in accordance with *Field Indicators of Hydric Soils in the United States* (U.S. Department of Agriculture, Natural Resources Conservation Service 2006). A soil pit was excavated at each data observation point, with the exception of data observation points that characterized non-wetland or "other waters", to examine the soil for positive indicators of hydric soils and wetland hydrology. Positive evidence of wetland hydrology was evaluated in the field, and included observable indicators, such as saturated soils in the upper 18 inches and the presence of oxidized rhizospheres. Colors of moist soils and redoximorphic features were compared with the Munsell® soil color chart and recorded on wetland determination data forms (Appendix C).

The final determination of potential waters of the U.S. within the study area was based on the presence of an observable OHWM and other indicators of hydrology such as direct observation of sediment deposition, as well as adjacent or abutting wetland habitat. In the upper reaches of the small tributaries that were dominated by upland species such as coyote brush and coast live oak, the hydric soil criterion was presumed to be absent based on the ephemeral nature of the drainages and lack of any hydrophytic vegetation. As such, these areas did not meet the Corps definition of a wetland, but were still identified as potential "waters" based on the presence of a distinct drainage pattern and OHWM. The Hydric Soils List for the South Coast Santa Barbara Area, California was reviewed to assist in this jurisdictional delineation.

As previously stated, the *Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory 1987) and *Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (U.S. Army Corps of Engineers 2008) were referenced in the determination of federal waters of the United States, and CCC and RWQCB waters of the State. The *Classification of Wetlands and Deepwater Habitats of the United States* (Cowardin 1979) and *Wetlands of the Central and Southern California Coast and Coastal Watershed: A Methodology for Their Classification* (Ferren et al. 1995) were also utilized during this analysis to assist in characterizing the on-site wetlands, other waters, and other potential jurisdictional areas. In addition, Rincon biologists reviewed aerial photographs depicting the study area (County of Santa Barbara 2004f; TerraServer USA 1994; Microsoft 2008), the U.S. Geological Survey (USGS) *Goleta, California* 7.5-minute topographic quadrangle (U.S. Geological Survey 1988), the *Soil Survey for Santa Barbara County, California* (Soil Conservation Service 1972), and other available background information provided by the County to better enhance the documentation on the nature and extent of Corps, CCC, RWQCB, and CDFG jurisdictional areas on the study area.

A data point was considered to be within a Corps-defined wetland (an "in" point) if the area contained all three wetland parameters (i.e., criteria), which included a dominance of wetland plant species, positive wetland hydrology indicators, and presence of hydric soil indicators. If one or more of these parameters was not met, the point was considered to not be within a Corps-defined wetland (an "out" point) and the boundary line was drawn between the two data points. In areas of the site that contained a predominance of Obligate Wetland and Facultative Wetland species, and where there were positive indicators of wetland hydrology such as in the natural drainages onsite, the hydric soils criterion was presumed to be met, and the area was mapped as a federal and State jurisdictional wetland.

Coastal Act wetlands were mapped based on the presence of a predominance of wetland plants and/or the presence of hydric soils. Direct observation of wetland hydrology also assisted in this wetland determination. Where possible, the presence of a single wetland parameter, such as hydric soils or obligate wetland plant, was used to delineate Coastal Act wetlands. However, much of the mesa is dominated by the introduced perennial Harding grass, which is classified as a facultative wetland plant (namely, equally likely to occur within wetland or upland). Harding grass is widespread in California because it has been used as a planted forage species and for revegetating after fires (Bossard, Randall and Hoshovsky, 2000), and consequentially is found in coastal valley and foothill grasslands throughout the state. It germinates and grows most extensively in wet to moist soil conditions, but also tolerates dry conditions because of its deep root system. It was widely planted as its main agronomic value is the ability to tolerate conditions of low moisture, heavy grazing, and winter soil trampling by livestock (Langer 1990 in Bossard, Randall and Hoshovsky, 2000). Because of these characteristics, reliance solely on the dominance of Harding grass in an area to determine wetlands based on a single parameter approach would result in an erroneous interpretation of actual coastal wetlands because Harding grass is not strictly a hydrophytic plant. Therefore, areas of the marine terrace and adjacent hillsides dominated by Harding grass were closely inspected to determine if this facultative wetland species was growing within an upland or wetland context. Harding grass dominated areas within topographic depressions and in basin bottomlands of onsite drainage features were identified as wetlands based on the presence of other associate wetland species, direct observation of wetland hydrology, or presence of hydric soil indicators. In upland areas, associate species were nearly always characteristic of upland habitat, with the exception being small occurrences of scarlet pimpernel (*Anagallis arvensis*, a facultative species). Multiple site visits during the winter season also allowed for direct observations of areas dominated by Harding grass that retained surface water for extended periods even if no indication of hydric soils was present.

Jurisdictional and wetland areas were delineated in the field with a Trimble GeoXT™ Global Positioning System (GPS) unit capable of sub-meter accuracy (accurate to within less than 3 feet). Wetland boundaries were walked by the biologist holding the GPS and simultaneously evaluating the vegetation cover and other indications of wetland extent. The GPS recorded a data point every three (3) seconds creating polygons that were plotted on an aerial photograph (scale 1"=125') overlaid with the study area boundary layer provided by the County. Therefore, each wetland boundary is actually comprised of tens to hundreds of specific data points recorded by the GPS unit.

2.3.4 RESULTS

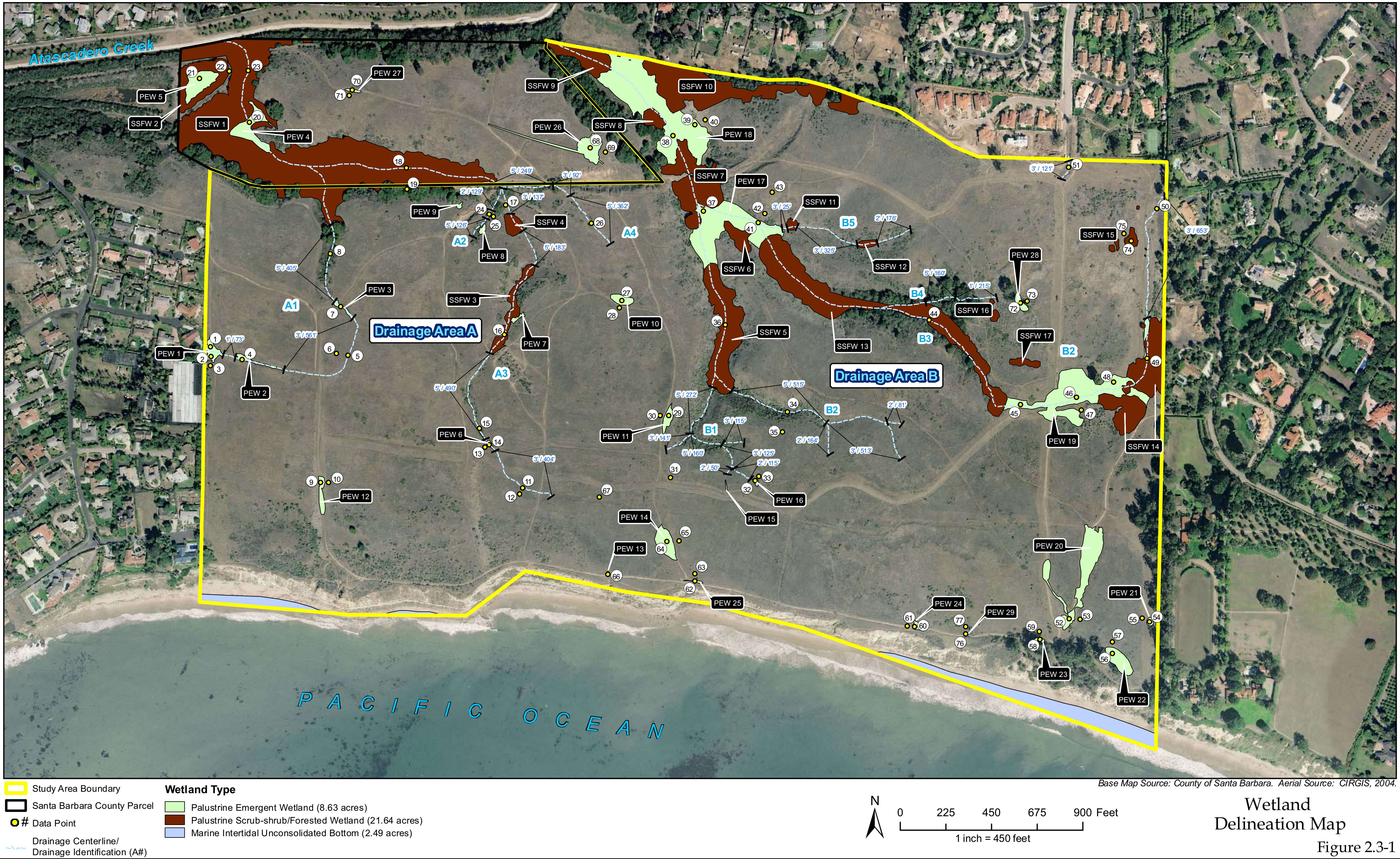
Based on the USFWS's *Classification of Wetlands and Deep Water Habitats of the United States* (Cowardin et al., 1979), wetland vegetation on the More Mesa study area consisted of three primary types: Palustrine Emergent Wetland and Scrub-Shrub/Forested Wetland, and Marine Intertidal Unconsolidated Bottom. The two palustrine types can be further separated based on the degree of seasonal soil saturation and flooding that occurs. Most of the palustrine system observed onsite was the scrub-shrub/forested wetland temporarily flooded type. The emergent wetland type included areas previously mapped during the 1982 study as vernal alkaline flat and vernal pool in the eastern and southeastern portions of the study area, as well as all the topographic depressions and basin bottomlands dominated by herbaceous species within Drainage Areas A and B (Figure 2.3-1).

The scrub-shrub/forested wetland type, identified on Figure 2.2-1 as Mixed Willow, is the most widespread on the More Mesa study area. It was observed throughout the drainage systems identified as Drainage Areas A and B up to the confluence with Atascadero Creek, which was further north just outside of the study area boundary. Scrub-shrub/forested wetland was also observed as distinct units along the eastern study area boundary where surface runoff and hydrologic input is supported by nuisance flows from residences and roadways within the Hope Ranch.

A total of 77 specific data observation points including soils pits were established to document potential waters of the U.S. and State of California on the More Mesa study area. Appendix A presents a list of vascular plants observed on the study area and the wetland indicator status for each species. Appendix B presents the data collected during the grassland mapping field effort in a tabular form. Appendix C presents the routine wetland determination forms and Figure 2.3-1, Wetland Delineation Map, respectively. Appendix D presents a copy of the National Wetlands Inventory map for the study area and surrounding Atascadero Creek Ecosystem. A soils map is provided in Section 1.0, *Introduction*, refer to Figure 1-8.

<u>Wetland Vegetation Criteria</u>

Hydrophytic vegetation was mainly confined to areas within and adjacent to the natural drainage features, with the exception of isolated occurrences of freshwater emergent and scrub-shrub wetland habitat scattered throughout the study area. Hydrophytic vegetation observed within the drainages ranged from facultative wetland to obligate wetland species, and included curly dock (*Rumex crispus* – FACW-), alkali heath (*Frankenia salina* – FACW+), bulrushes (*Scirpus* spp. – OBL), broadleaf cattail (*Typha latifolia* – OBL), and spikerushes (*Eleocharis* spp. – OBL). In some instances, wetland habitat identified on the study area included a predominance of facultative species, in particular Harding grass (*Phalaris aquatica*) which has become established in seasonally wet areas and has apparently outcompeted the native wetland flora in localized areas on the study area. Prickly ox tongue (*Picris echioides* – FAC+), Mediterranean barley (*Hordeum marinum* ssp. *gussoneanum* – FAC), and Italian ryegrass (*Lolium perenne* ssp. *multiflorum* – FAC*) also occur in wetland habitat on the study area, but appear to be restricted to less saturated areas compared to those areas dominated by alkali heath, cattail, and tule.



Wetland
Delineation Map

Figure 2.3-1

Harding grass has also become established throughout the slopes in apparent upland locations (i.e., terraces, hills and slopes with no wetland hydrology present). The California Invasive Plant Council ranks Harding grass as moderately invasive and that it is widespread in California because it has been used as a forage species and for revegetating after fires. It is most common in coastal valley and foothill grasslands from Oregon to the Mexican border, and is typically found along roadsides that are seldom defoliated, allowing this tall, erect, leafy plant to dominate neighboring vegetation. It also is frequently found beside ditches and streams because it tolerates wet soil conditions. However, it also tolerates dry conditions because of its deep root system. Harding grass is native to the Mediterranean region, and has been dispersed throughout the world by agronomists and farmers for its value as forage in pastures. Its main agronomic value is its ability to tolerate conditions of low moisture, heavy grazing, and winter trampling by livestock (Langer 1990).

The expansive fields of Harding grass outside the natural drainage features and topographic depressions are not: 1) associated with typical wetland animal taxa, such as egrets, herons, frogs, fairy shrimp, etc.; 2) contributing to aquatic or wildlife diversity or abundance, or functioning to cycle nutrients, attenuate flood flows, etc.; or 3) serving as refugia for nesting or other critical life stages by typical wetland animal taxa, or providing typical wetland values to society, such as increasing water supply, supporting the food chain, etc. The majority of attributed and functions that would qualify an area as a wetland pursuant to Fish and Game policy are not met in upland areas of the site where Harding grass forms the dominant cover and there are no positive indicators of hydric soils or specific wetland hydrology indicators beyond the presence of this grass. Moreover, soils investigations throughout the terraces and slopes onsite where Harding grass forms the dominant cover confirmed that hydric soil indicators are absent from these locations. Therefore, areas of Harding grass outside drainage features or topographic depressions where seasonally ponded water was observed were determined to not meet the wetland vegetation criterion for this study.

Please refer to Appendix A for a complete list of plant species observed during the delineation along with the associated wetland indicator status.

Wetland Soils Criteria

The upper 20 inches of the soil profile was examined to determine presence or absence of positive indicators for hydric soils and to determine if the soil map units mapped and described by the U.S. Department of Agriculture, Natural Resources Conservation Service (USDA, NRCS) were consistent with observed soil characteristics. In some instances, soils were investigated below 20 inches to determine the presence or absence of an impenetrable or drainage restricting layer. The USDA, NRCS identified six soil map units representing five distinct soil series types as occurring on the study area (see the Soils Map in Section 1 Figure 1-8). Beaches and Camarillo fine sandy loam (when associated with floodplains and depressions) are the two soil map units identified by the NRCS as hydric soils on the Hydric Soils List for South Coastal Part of Santa Barbara County (2007). The six soil map units occurring on the study area include:

- Baywood loamy sand, 2-9% slopes;
- Beaches;
- Camarillo fine sandy loam;
- Concepcion fine sandy loam, 2-9% slopes;
- Concepcion fine sandy loam, 9-15% slopes; and
- Diablo clay, 2-9% slopes.

The typical setting for the *Baywood loamy sand, 2-9% slopes* soil map unit is characterized by areas with elevations between 20 and 200 feet above mean sea level (msl), mean annual precipitation of 16 to 20 inches, mean annual air temperature of 61 degrees Fahrenheit (ºF), and a frost-free period of 330 days (U.S. Department of Agriculture, Natural Resources Conservation Service 2008). The composition of this soil map unit is 85% Baywood soils and 15% minor components, such as Milpitas, Concepcion and unnamed soils. The depth to restrictive feature is more than 80 inches and the drainage class is somewhat excessively drained. The typical profile for the *Baywood loamy sand, 2-9% slopes* soil map unit is 0 to 62 inches of loamy sand. Onsite soil colors when moist were primarily 10YR3/2.

Beaches consist of narrow sandy beaches along the ocean. They are partly covered by waves during high tide and are exposed during low tide. This map unit is essentially barren, and is typically stratified with layers of sand or gravel. Some areas are covered by cobbles. Permeability of this map unit is very rapid, and the available water capacity is low or very low. As stated above, it was identified by the NRCS as a hydric soil.

The setting for the *Camarillo fine sandy loam* soil map unit is typically characterized by areas with elevations between 10 and 50 feet above msl, mean annual precipitation of 15 to 20 inches, mean annual air temperature of 60 to 62 ºF, and a frost-free period of 310 to 330 days (U.S. Department of Agriculture, Natural Resources Conservation Service 2008). The composition of this soil map unit is 85% Camarillo soils and 15% minor components, such as Goleta (fsl), Camarillo (ponded) and unnamed loamy sand soils. The depth to restrictive feature is more than 80 inches and the drainage class is poorly drained. The typical profile for the *Camarillo fine sandy loam* soil map unit is 0 to 19 inches of fine sandy loam and 19 to 57 inches of loam. Areas of the site containing this soil map unit primarily exhibited dark, low chroma (10YR2/1) and contained high clay content potentially resulting from erosion of the Diablo Clay areas to the south. This map unit is identified as hydric soils when associated with floodplains and depressions.

The general setting for the *Concepcion fine sandy loam, 2-9% slopes* and *Concepcion fine sandy loam, 9-15% slopes* soil map units is characterized by areas with elevations between 40 and 200 feet above msl, mean annual precipitation of 16 to 20 inches, and mean annual air temperature of 59 to 62 ºF (U.S. Department of Agriculture, Natural Resources Conservation Service 2008). The composition of these soil map units is 85% Concepcion soils and 15% minor components, such as Baywood, Diablo, Milpitas, Positas and unnamed soils. The depth to restrictive feature is 16 to 23 inches for *Concepcion fine sandy loam, 2-9% slopes* and 10 to 20 inches for *Concepcion fine sandy loam, 9-15% slopes*. The drainage class for both units is moderately well-drained. The typical profile for the *Concepcion fine sandy loam, 2-9% slopes* and *Concepcion fine sandy loam, 9-15% slopes* soil map units is 0 to 18 inches of fine sandy loam, 18 to 32 inches of clay, and 32 to 60 inches of clay loam. Investigation of soils in areas of the site mapped as Concepcion fine sandy loams confirmed the sandy loam composition and mostly light colors (10YR3/3 and 10R3/3)

The setting for the *Diablo clay, 2-9% slopes* soil map unit is generally characterized by areas with elevations between 50 and 700 feet above msl, mean annual precipitation of 16 to 20 inches, mean annual air temperature of 60 to 62 ºF, and a frost-free period of 300 to 330 days (U.S. Department of Agriculture, Natural Resources Conservation Service 2008). The composition of this soil map unit is 85% Diablo soils and 15% minor components, such as Ayar, Milpitas, Positas and Zaca soils. The depth to restrictive feature is more than 45 to 60 inches and the drainage class is well-drained. The typical profile for the *Diablo clay, 2-9% slopes* soil map unit is 0 to 50 inches of clay and 50 to 54 inches of weathered bedrock. This soil map unit onsite was dark in color (10YR2/1 when moist).

Wetland Hydrology Criteria

Each data observation point was examined for positive field indicators of wetland hydrology. Presence of positive indicators for wetland hydrology occurring within features on the study area was typically determined if there was a presence of oxidized rhizospheres (primary indicator) and an observation of a drainage pattern within the wetland (secondary indicator). In several locations, the FAC-neutral test (secondary indicator) was also employed to assist in determining if positive indicators for wetland hydrology were met. Moreover, given that the focused survey effort occurred over a year-long period, direct observation of wetland hydrology was possible. This allowed greater refinement to the extent of wetland habitat occurring in difficult areas, such as the areas dominated by Harding grass.

The drainages on the study area were determined to fall under Corps jurisdiction because they were hydrologically connected to waters of the U.S. to the north and west of the study area. Drainage Areas A and B are a series of intermittent streams that convey surface runoff and discharge groundwater from the surrounding hills and terraces, ultimately conveying water to the north into Atascadero Creek. In the vicinity of the study area, Atascadero Creek flows in a primarily east-to-west direction, eventually flowing into the Goleta Slough and the Pacific Ocean to the west of the study area.

The upper reach of Drainage B (Segment B3 on Figure 2.3-1) originates in the northeast corner of the study area where a concrete-lined storm drainage ditch 'daylights' onto the study area. This feature appears to receive road and surface runoff from the Hope Ranch residential area, and conveys it within a primarily excavated ditch that traverses the eastern edge of More Mesa. Based on the presence of dense scrub-shrub/forested wetland and freshwater emergent wetland, offsite drainage contributes a substantial amount of water to this portion of the study area. Based on review of a historic 1964 topographic map (Penfield and Smith) included in the LSA 1996 Preliminary Biological Report, natural drainage in this portion of the site was altered to direct it along the eastern study area rather than allowing surface flows to traverse the site in a primarily southwesterly direction towards Drainage B4. Earthen berms and soil stockpiles were observed to the southwest of a eucalyptus in this area, which impound surface drainage and create a seasonal wetland in the vicinity of the historic drainage channel. Please refer to Data Points 74 and 75 for further detail. In addition, scattered arroyo willow occurrences (SSFW 15, 16, and 17) are also present in this portion of the site, apparently being supported by subsurface flows still moving in a primarily northeast to southwest direction towards Drainage B4.

Types of Waters of the United States and State of California

Three distinct wetland types were documented on the More Mesa study area and include Palustrine Emergent Wetland (primarily the temporarily flooded type), Palustrine Scrub Shrub/Forested Wetland, and Marine Intertidal Unconsolidated Bottom as illustrated on Figure 2.3-1. Lower reaches of the drainage features onsite contain more seasonally flooded wetlands, primarily restricted to the basins or drainage bottomlands south of Atascadero Creek. Intermittent Stream channels also exist onsite, and although they do not contain water for a sufficient duration to support wetland vegetation, are still within federal and state jurisdiction based on the presence of an observable OHWM.

The delineation identified a total of 17.6 acres including 21,926 linear feet of intermittent streams of Corps-jurisdictional waters of the U.S. on the study area (Table 2.3-1; Figure 2.3-1). This included the extent of a continuous OHWM observed within Drainage Areas A and B (e.g., lateral limits of jurisdiction at head-cuts that were hydrologically connected to (i.e., tributary to) Atascadero Creek, a Relatively Permanent Water (RPW) which is hydrologically connected to the Pacific Ocean, a Traditional Navigable Water (TNW) approximately 1.5 miles west of the study area. Numerous areas within, abutting, and adjacent to Drainage Areas A and B met the Corps definition of a wetland (i.e., all three parameters were met). Some of these areas were identified as wetlands solely because they exhibited a dominance of hydrophytic vegetation (in addition to being located within or abutting a drainage), but in some cases dense and impenetrable vegetation precluded soils examination. In locations where dense arroyo willow and poison oak thickets dominate the drainage, Corps jurisdiction was estimated based on observations of OHWM and rooted vegetation within this area. It should also be noted that the flows within the Drainages A and B are unknown and there is a potential for these features to not qualify as RPWs and only be Corps-jurisdictional under a "significant nexus" determination. Accordingly, the wetlands identified that were within and abut these drainages may not qualify as Corps-jurisdictional if the drainages themselves are considered not to be under federal jurisdiction. The following table shows the extent of potential Corps jurisdiction onsite.

Table 2.3-1 Summary of Jurisdictional Waters of the U.S.

Waters of the U.S. Type	Total Acreage	Total Linear Feet
Wetlands		
Palustrine Scrub Shrub/Forested Wetland (Riparian)	8.14	n/a
Palustrine Emergent Wetland	6.47	n/a
Marine Intertidal Unconsolidated Bottom	2.49	n/a
Other Waters		
Intermittent Stream	0.50	21,926
Total Waters of the U.S.	**17.60**	**n/a**

Approximately 14.60 acres on the mesa are under the jurisdiction of the Corps as wetland waters of the U.S. (i.e., portions of Drainage Areas A and B and their abutting or adjacent wetlands). Approximately 0.50 acre (21,926 linear feet), mostly in the upper reaches of Drainage Areas A and B, were determined to fall under Corps jurisdiction as non-wetland waters of the U.S. (also known as "other waters"). Specifically, the portions (i.e., areas not identified as PEW or SSFW) of Drainage Areas A and B identified as A1, A2, A3, A4, B1, B2, B3, B4 and B5 meet the Corps definition of "other" waters of the U.S. based on the presence of a well-defined OHWM. In addition, 2.49 acres of Marine Intertidal Unconsolidated Bottom were identified onsite which are also within the Corps jurisdiction pursuant to the Clean Water Act. Total Corps jurisdiction within the study area is 17.60 acres.

Based on the presence of one wetland parameter (i.e., dominance of hydrophytic vegetation and/or positive indicators of wetland hydrology and/or hydric soils), approximately 32.72 acres of the study area were delineated as Coastal Act wetlands subject to the requirements of the California Coastal Act (Table 2.3-2; Figure 2.3-1). An additional 0.5 acre of intermittent stream channels bring the total State jurisdictional area to approximately 33.22 acres. The same areas meet the County's wetland definition based on the presence of at least one wetland parameter. The limits of State and County jurisdiction encompassed a larger total area with application of the one-parameter test and inclusion of isolated wetlands.

Table 2.3-2 Coastal Act Wetlands

	Total Acreage	Total Linear Feet
Wetlands		
Palustrine Emergent Wetland	8.59	n/a
Palustrine Scrub Shrub/Forested Wetland	21.64	n/a
Marine Intertidal Unconsolidated Bottom	2.49	n/a
Other		
Intermittent Stream	0.50	21,926
Total	**33.22**	**n/a**

All Corps jurisdictional areas are also under the jurisdiction of the CCC and the County's LCP as Coastal Act wetlands based on the presence of one wetland parameter. In addition to the Corps' jurisdictional area as identified above and previously described, an additional 15.62 acres of the study area met the Coastal Act definition of wetlands based on the presence of either a predominance of hydrophytic plants and/or positive indicators for hydric soils and/or wetland hydrology. The total CCC-jurisdictional area is approximately 33.22 acres, which includes approximately 21,926 linear feet of intermittent stream channels. The same area meets the County of Santa Barbara's definition as a wetland.

CDFG jurisdiction includes all natural drainage features with a defined bed and bank, as well as associated riparian habitat. Abutting, adjacent and isolated wetlands devoid of a defined bed and bank or riparian habitat were not included as CDFG jurisdictional area. Table 2.3-3 below provides the breakdown of CDFG jurisdictional area on the study area.

Table 2.3-3 Summary of CDFG Jurisdictional Area

	Total Acreage	Total Linear Feet
Drainage Area A		
Drainage A1	10.55	2,770.88
Drainage A2	0.06	293.80
Drainage A3	0.68	2,438.52
Drainage A4	0.08	713.65
Drainage Area A Total	**11.37**	**6,216.85**
Drainage Area B		
Drainage B1	9.86	3,033.49
Drainage B2	0.11	1,391.15
Drainage B3	6.72	3,630.54
Drainage B4	0.02	589.10
Drainage B5	0.16	794.02
Drainage Area B Total	**16.87**	**9,438.30**
Total CDFG Jurisdiction	**28.24**	**15,655.15**

Wetlands, waters of the U.S., Coastal Act wetlands, and CDFG jurisdiction identified within this report are subject to verification by the regulatory agencies. Rincon advises all interested parties that the information contained herein is considered preliminary pending written verification of jurisdictional boundaries by the regulatory agencies.

2.3.5 COMPARISON WITH 1982 STUDY

The 1982 study did not include a formal jurisdictional wetland delineation, and as such, a precise comparison between the current investigation and the 1982 study cannot be done. The current wetland delineation protocols created by the Corps, and used to delineate the extent of onsite wetlands for this study were not developed at the time of the 1982 study. Moreover, the mapping technologies employed for this study are different from those used in 1982 and further complicate a comparison between studies. Nevertheless, areas mapped in 1982 as wetland habitat were reviewed and compared to those areas identified as wetland habitat in 2008-2009. For the most part, the updated study is consistent with those areas identified during the 1982 investigation, with the exception being the increased number and areal extent of wetland features onsite.

Major wetland features such as the in-channel emergent and scrub shrub/forested wetlands associated with Drainage Areas A and B are still in tact and functioning as described by Ferren et al. in 1982. It appears that the in-channel wetlands have expanded since the 1982 study, with a noted increase in emergent wetland and scrub shrub/forested wetlands on the site. Comparing Figure 26 included in the 1982 study to the wetland delineation map included herein, it is evident that wetlands in the eastern central portion of the site have expanded considerably, and areas in the west central part of the site also now support emergent wetland habitat. This appears to be largely caused by increased artificial hydrologic input from neighboring properties. However, it is noted the hydrologic changes that benefitted that area also potentially removed wetland habitat from Drainage B4. In addition, the extent of scrub shrub/forested wetland has also increased substantially over the course of time since the 1982 study. Riparian habitat polygons shown on Figure 26 in the 1982 study have discreet patches of arroyo willow dominated segments within Drainage Areas A and B. To date, many of these patches have grown together forming a contiguous canopy lining the drainage channels.

An important observation since the 1982 field work was performed is the spread of Harding grass throughout the site. The basin bottomlands of Drainage Areas A and B, and the isolated topographic depressions that occur throughout the eastern terraces of the site are now dominated by dense impenetrable swards of Harding grass. The vernal pool in the southeastern section of the study area appears threatened by invading Harding grass tussocks. While prolonged saturation appears to preclude Harding grass from successfully colonizing a wetland feature, it is possible for this species to become established in wetland areas during periods of drought and then persist through periods of standing water. It is noted that Harding grass is a frequent target for elimination during restoration efforts for coastal wetlands.

2.4 WILDLIFE HABITAT MAPPING

2.4.1 INTRODUCTION

The California Department of Fish and Game Biogeographic Data Branch has developed the California Wildlife Habitat Relationships (CWHR) System, a comprehensive information system for terrestrial vertebrates and their habitats in California. It contains life history, geographic range, habitat relationships, and management information on 694 species of amphibians, reptiles, birds, and mammals that occur in the state. It includes a standardized habitat classification scheme that lists habitat types and special habitat elements. The CWHR Habitat Classification Scheme is at the association level, and is based upon Mayer and Laudenslayer (1988) with online updates (accessible at http://www.dfg.ca.gov/biogeodata/cwhr). Wildlife habitat types differ from the plant communities or series described by Sawyer and Keeler-Wolf (1995) and Holland (1986) as the specific type of plant present is not as important as the availability of food, water, appropriate breeding areas, and shelter. Therefore several community types described by these classification systems may be included in one habitat type under CWHR. The CWHR Habitat Classification Scheme contains 59 general habitat types and 124 special habitat elements.

Of particular importance to the identification of suitable wildlife habitat is the special habitat elements, which are specific features that relate to wildlife use of the site, such as cliffs, snags, and rock outcroppings. These features are often essential for a species' occupancy within a particular habitat. For instance, while two areas may contain similar grassland communities, the presence of friable soils in one locale as compared to the other can be a determining factor in the presence and population size of reptile species. The inclusion of habitat elements into the predictive model allows the CWHR methodology to be useful for smaller scale projects. The identification and inclusion of these elements in this study allows an evaluation of specific habitat resources at a fine scale. This detailed information can be used to pinpoint particular areas of the site that have high value to wildlife and are potentially more biologically sensitive.

2.4.2 METHODOLOGY

The general habitat types were mapped as a Plant Community Map, as detailed in Section 2.2. The CWHR Habitat Classification Scheme was applied to these plant community types for reclassification. Following the CWHR special habitat element scheme, a map was prepared showing the location of biologically important habitat elements. Field surveys were conducted to locate sensitive habitat elements during the course of other field work in summer 2008. These features were overlaid on an aerial photograph (CIRGIS 2004). The elements selected included: drainages, ponds, wetlands, snags, tall dead shrubs, tall trees, cliffs (by soil type), barren soils, cut logs, rocks/debris, leaf litter, downed wood, stands of dying or dead coyote brush, fences, and utility lines.

Stands of coyote brush on-site were observed to be infected by a beetle that apparently defoliates the shrubs and may lead to senescence or death. Larvae of the beetle (probably *Trirhabda luteocincta*) reside in foamy nests within the leafy branches, and the metallic green adult appears to consume the leaves. Densities of this beetle were observed to be extremely high in infected stands of coyote brush, and considerable areas were completely defoliated following infestation. Some defoliated stands had living tissue under the bark, and following the death of the adults in the late summer, some new leaves were observed sprouting at the base of the shrubs. Therefore, some of these effects may be seasonal. These areas were mapped in order to document changes in the health of coyote brush stands over time, since the loss of these stands of coyote brush would inevitably affect wildlife habitat on the site.

2.4.3 RESULTS AND DISCUSSION

The following habitat types, as described under the CWHR, were identified on More Mesa and the County property: 1) annual grassland, 2) barren, 3) coastal oak woodland, 4) coastal scrub, 5) eucalyptus, 6) freshwater emergent wetland, 7) lacustrine, 8) pasture (*Phalaris aquatica*-dominated grasslands), and 9) valley foothill riparian.

The distribution of special habitat elements on-site is shown in Figure 2.4-1. Resources such as snags, tall trees, leaf litter, downed wood, and aquatic resources were generally restricted to the on-site drainages. These areas are used by a wide diversity of animal species, including raptors, migratory song birds, amphibians, reptiles, mammals, and invertebrates. The ecotonal edges of riparian habitat bordering grassland habitats are also very important for many species. For example, raptors use tall trees or snags as a perch from which to forage in grassland areas and those trees that offer such locales are shown on Figure 2.4-1. Site specific detailed surveys for the white-tailed kite as discussed in Section 3 indicate that the kites use many of the perch locations identified by the wildlife habitat mapping effort, though some taller perches were not used while other lower perches were. Many medium-sized mammals forage in grasslands, but use cover of the riparian habitats while resting or avoiding predators. The bluff along the Pacific Ocean also contained friable soils, ledges, overhangs, and small caves that could be used by swallows and swifts for nest sites. Cut logs and debris were generally found along the perimeter of the property. These resources can be important for reptile cover and basking sites. Wetlands on-site are ephemeral and are important to many species during the winter when water is present. These areas can be used as a water source for many species, and are used as breeding sites for northern Pacific treefrogs (*Pseudacris regilla*) and aquatic invertebrates such as clam shrimp. Fish habitat is not present on the More Mesa property, but the ponds on the County property have been stocked with mosquitofish, which serve as a food source for various birds, amphibians, and large carnivorous insects.

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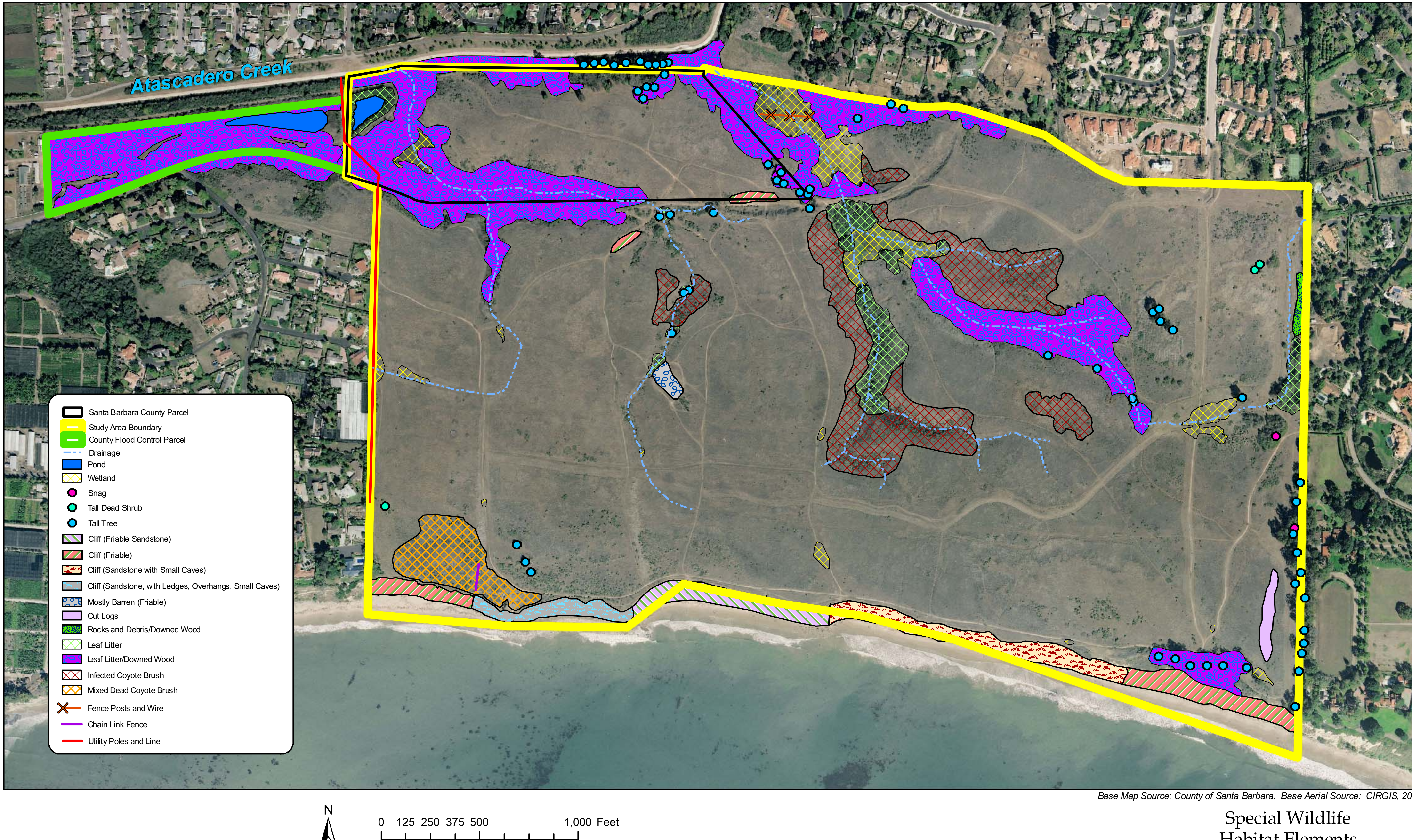


Base Map Source: County of Santa Barbara. Base Aerial Source: CIRGIS, 2004.

Special Wildlife
Habitat Elements

Figure 2.4-1

SECTION 3 – VERTEBRATES

This section discusses the findings of general avian, general raptor, and focused sensitive bird species surveys; small mammal trapping; acoustical bat monitoring; and herpetological pitfall trapping efforts and visual encounter surveys performed at More Mesa during 2008 and 2009.

3.1 BIRDS

3.1.1 INTRODUCTION

Many habitats occur within and adjacent to the study area, and are suitable for a variety of resident, wintering, and migratory bird species known to occur within Southern California and in the Santa Barbara County in particular. The objective of the multi-faceted bird studies included inventorying all species present, their status (e.g. breeding, winter, migratory, etc.), relative abundance, and habitat affiliations, determining the occurrence and status of special-status bird and raptorial species, and examining white-tailed kite breeding, roosting, and foraging within and adjacent to More Mesa. Additional goals of the study included examining raptor foraging as it relates to competition with white-tailed kite and determining how various human recreational activities affected raptors, including white-tailed kite. A final objective of the bird study was to determine the regional importance of More Mesa to the white-tailed kite population within Goleta Valley.

To accomplish these goals, objective bird data was collected through focused studies via. general line transects and focal point special-status, raptor, and white-tailed kite surveys, and through incidental observations over the study period during mammal and herpetological studies. Extensive review of background materials (i.e. reports, literature, documents, field notes, etc.) was conducted to assist in determining historical presence and use by special-status species, including white-tailed kite. To this end, many local biologists, ornithologists, and avid bird-watchers were also contacted for inclusion of their historic data where appropriate. The County of Santa Barbara directly contracted with biologist Mark Holmgren (UCSB Museum of Systematics and Ecology) to provide a database of historical kite data within Goleta Valley taken during the course of various studies and by many local biologists since 1963. These data were evaluated in the habitat sensitivity analysis to aid in determining the extent and nature of Environmentally Sensitive Habitat at the site. The study employed the latest methods and technology to examine bird diversity and abundance within the study area, and collected data in a manner to allow comparison with the results of the 1982 study and, thus, determine any differences or trends over time.

Special-Status Bird Species. A target list of special-status bird species that could potentially occur on-site was developed by consulting various species occurrence records. This search included a query of the California Natural Diversity Database (CNDDB; California Department of Fish and Game, 2008) for records within the U.S.G.S. 7.5' quadrangles including and immediately adjacent to the site (Dos Pueblos Canyon, Goleta, Santa Barbara, San Marcos Pass, Lake Cachuma, and Little Pine Mountain.). The U.S. Fish and Wildlife Service's list of federally threatened and endangered species that may occur in Santa Barbara County was also reviewed (http://www.fws.gov/ventura/speciesinfo/spplists/sl_santabarbara_co.cfm). A review of published and unpublished literature (Collins, P.W. 2005, 2006, 2007; County of Santa Barbara. 2004, 2008; ESA, 1992; Hunt, 1999, 2004; Labinger, Z. and Dr. S. Laymon, 1997; LSA 1996, 1997; Storrer and Semonsen, 1992a, b; UCSB, 1982; URS, 2008a, b, c; Vanderwier, 2001; Watershed Environmental, 2001a; Woodward-Clyde Consultants, 1994) was also conducted. All special-status bird species recorded within and adjacent to the study site were included in the target list (Table 3.1-1).

White-tailed kite, *Elanus leucurus*, have been consistently recognized as an important local biological resource in Santa Barbara County and More Mesa has long been considered one of the most important breeding, roosting, and foraging areas for kites in Goleta Valley. Waian (1973) considered More Mesa to be "the single most important piece of land for the White-tailed Kite from Gaviota to Santa Barbara and possibly further south." Although 36 years have passed since that time, local biologists and kite experts continue to agree with Waian's assessment. Therefore, most of the bird study was specifically focused on an examination of the historical and current white-tailed kite breeding, roosting, and foraging at More Mesa and within Goleta Valley.

Table 3.1-1 Sensitive Bird Species With Potential to Occur Within the Study Area

Order and Family	Common name	Scientific name	Federal, State, DFG, or local status [1]	Potential period of occurrence	Observed in 1982/1996 [2]
ANSERIFORMES					
Anatidae	Brant	*Branta bernicla*	Timing not listed – SSC	Winter only	1996
GAVIIFORMES					
Gavidae	Common loon	*Gavia immer*	Nesting – SSC	Winter only	1996
PELECANIFORMES					
Pelecanidae	California brown pelican	*Pelecanus occidentalis californicus*	Nesting colony & Communal roosts – FE, SE	Year-round	1996
Phalacrocoracidae	Double-crested cormorant	*Phalacrocorax auritus*	Rookery site – WL	Year-round	1996
CICONIIFORMES					
Ardeidae	Great blue heron	*Ardea herodias*	Rookery site – SA	Year-round	1982/1996
	Great egret	*Ardea alba*	Rookery site – SA	Year-round	1982/1996
	Snowy egret	*Egretta thula*	Rookery site – SA	Year-round	1982/1996
	Black-crowned night-heron	*Nycticorax nycticorax*	Rookery site – SA	Year-round	1996
Threskiornithidae	White-faced ibis	*Plegadis chihi*	Rookery site – WL	Migration only	1996
FALCONIFORMES					
Cathartidae	California condor	*Gymnogyps californianus*	Timing not listed – FE, SE	Year-round	-
Pandionidae	Osprey	*Pandion haliaetus*	Nesting – WL	Winter only	1996
Accipitridae	White-tailed kite	*Elanus leucurus*	Nesting – FP	Year-round	1982/1996
	Northern harrier	*Circus cyaneus*	Nesting – SSC	Year-round	1982/1996
	Sharp-shinned hawk	*Accipiter striatus*	Nesting – WL	Winter only	1982/1996
	Cooper's hawk	*Accipiter cooperii*	Nesting – WL	Year-round	1982/1996
	Ferruginous hawk	*Buteo regalis*	Wintering – WL	Winter only	-
	Bald eagle	*Haliaeetus leucocephalus*	Nesting & Wintering – FD, SE, FP	Winter only	-
Falconidae	Merlin	*Falco columbarius*	Wintering – WL	Winter only	1996
	Peregrine falcon	*Falco peregrinus*	Nesting – FD, SE, FP	Winter only	-
GRUIFORMES					
Rallidae	Light-footed clapper rail	*Rallus longirostris levipes*	Timing not listed – FE, SE, FP	Year-round	-

Table 3.1-1 Sensitive Bird Species With Potential to Occur Within the Study Area

Order and Family	Common name	Scientific name	Federal, State, DFG, or local status [1]	Potential period of occurrence	Observed in 1982/1996 [2]
CHARADRIIFORMES					
Charadriidae	Western snowy plover	*Charadrius alexandrinus nivosus*	Nesting – FT, SSC	Year-round	-
Scolopacidae	Long-billed curlew	*Numenius americanus*	Nesting – WL	Winter only	1996
Laridae	California gull	*Larus californicus*	Nesting colony – WL	Winter only	1982/1996
	Forster's tern	*Sterna forsteri*	Nesting colony – SA	Year-round	1996
	Elegant tern	*Sterna elegans*	Nesting colony – WL	Migration only	1996
STRIGIFORMES					
Strigidae	Short-eared owl	*Asio flammeus*	Nesting – SSC	Winter only	1982
	Burrowing owl	*Athene cunicularia*	Burrow sites & Some wintering sites – SSC	Year-round	1996
APODIFORMES					
Apodidae	Vaux's swift	*Chaetura vauxi*	Nesting – SSC	Migration only	1982/1996
Trochilidae	Costa's hummingbird	*Calypte costae*	Nesting – SA	Summer only	1996
	Rufous hummingbird	*Selasphorus rufus*	Nesting – SA	Migration only	1982
	Allen's hummingbird	*Selasphorus sasin*	Nesting – SA	Summer only	1982/1996
PICIFORMES					
Picidae	Nuttall's woodpecker	*Picoides nuttallii*	Nesting – SA	Year-round	1982/1996
PASSERIFORMES					
Tyrannidae	Willow flycatcher	*Empidonax traillii*	Nesting – SE	Migration only	1982/1996
	Southwestern willow flycatcher	*Empidonax traillii extimus*	Nesting – FE, SE	Migration only	-
Laniidae	Loggerhead shrike	*Lanius ludovicianus*	Nesting – SSC	Year-round	1982/1996
Vireonidae	Least Bell's vireo	*Vireo bellii pusillus*	Nesting – FE, SE	Summer only	-
Alaudidae	California horned lark	*Eremophila alpestris actia*	Timing not listed - WL	Year-round	
Hirundinidae	Bank swallow	*Riparia riparia*	Nesting – ST	Migration only	-
Paridae	Oak titmouse	*Baeolophus inornatus*	Nesting – SA	Year-round	1982/1996
Parulidae	Yellow warbler	*Dendroica petechia*	Nesting – SSC	Summer only	1982/1996
Emberizidae	Grasshopper sparrow	*Ammodramus savannarum*	Nesting – SSC	Summer only	1996

Table 3.1-1 Sensitive Bird Species With Potential to Occur Within the Study Area

Order and Family	Common name	Scientific name	Federal, State, DFG, or local status [1]	Potential period of occurrence	Observed in 1982/1996 [2]
	Belding's savannah sparrow	*Passerculus sandwichensis beldingi*	Timing not listed – SE	Year-round	-
Icteridae	Tri-colored blackbird	*Agelaius tricolor*	Nesting colony – SSC	Year-round	1982
Fringillidae	Lawrence’s goldfinch	*Carduelis lawrencei*	Nesting – SA	Year-round	1982/1996

[1] **FE** – Federally Endangered, **FT** – Federally Threatened, **FD** - Federally Delisted, **SE** – State Endangered, **ST** – State Threatened, **FP** – California Department of Fish and Game (CDFG) Fully Protected, **SSC** – CDFG Species of Special Concern, **WL** – CDFG Watch List, **SA** – CDFG Special Animal.

[2] UCSB, 1982 and Labinger, Z. and Dr. S. Laymon, 1997.

White-tailed kite have no federal status, but are fully protected under the California Fish and Game Code. Kites are considered uncommon to locally fairly common residents along the coastal slope of California. Populations declined to very low levels early in the 20th century, but had risen substantially by the mid-1970s. However, population sizes locally continue to fluctuate, which may in large part be in synchrony with fluctuating rodent populations. Studies of kite in coastal Santa Barbara County in the late 1960's and early 1970's determined that kites in Santa Barbara prey almost exclusively on small rodents, specifically *Microtus californicus* (California vole), *Mus musculus* (house mouse) and *Reithrodontomys megalotis* (harvest mouse) (Waian, 1973 and Stendell, 1967). Nonbreeding populations of this species are limited primarily by food, whereas breeding populations appear limited both by food and nest-site availability. For this species, territory size is a function of both prey and competitor abundance (Poole, 2005). Daily energy budgets during the nonbreeding season equal roughly 3 prey items, or 76.6 g killed/day (mass after evisceration) (Koplin et al, 1980).

Although kite pairs may be found year round, more pairs are observed December through September. Nest building typically begins in January and may continue through August. Eggs may be laid throughout the spring and into the summer months depending on the number of nests built by a pair. Re-nesting may occur if the first nest fails or if food sources are adequate, a second nest may be initiated while young from the first nest are still dependent. Kites primarily nest in riparian areas with sycamores, oaks, willows, and cottonwoods, and hunt in adjacent open spaces. Nest trees may vary from 10 – 150 feet in height. Most nests are on habitat edges and are placed in the upper tier of the tree. Nests generally are not reused in subsequent breeding attempts. Clutch size is typically four. Only the female incubates, while the male hunts and defends the nesting territory. Young are fledged typically at around 4 – 5 weeks. Waian (1973) reported that immature kites were "consistently social" often flying, chasing, perching near and calling to one another. Adults are tolerant of juveniles. Waian suggested that immature kites may even be able to enter territories of neighboring kites without aggression.

Unlike most raptors, which tend to defend large territories, kites have been observed within relatively close proximity during both the nesting and roosting period. White-tailed kites may be gregarious and form large communal night roosts during the winter months. A historically large roost, 110 individuals, was recorded at More Mesa in the mid-1970's. Roosts are primarily in trees, but have included orchards and in Texas sugar cane fields. Kites observed in Santa Barbara typically roost in riparian and woodland habitats or orchards. Kites are often recognized for their hunting behavior known as "kiting" or hovering. Kites hover with shallow-beating wings, falling with quick dives and strikes upon locating prey. Hovering may occur as high as 80 feet, making the behavior conspicuous to observing humans.

3.1.2 METHODOLOGY

Bird surveys were divided into three survey types: 1) general avian surveys, 2) raptor surveys, and 3) white-tailed kite surveys. General avian and raptor surveys included focused efforts to determine the status of species of local interest and/or those listed as special-status. Focused burrowing owl protocol-level surveys were conducted as part of the raptor surveys. White-tailed kite surveys were sub-divided into three survey types: 1) breeding, 2) roosting, and 3) foraging. Standard weather parameters (cloud cover, wind, temperature, precipitation) were recorded at the start of all surveys, as well as the beginning and ending survey times. Surveys were not conducted during adverse weather conditions (e.g. fog, rain, wind speeds > 20 mph). Binoculars were used to aid in searching, identification, behavioral observations. The study area for bird surveys included the More Mesa site and the adjacent County parcel.

Species relative abundance categories based on detectability during the study period were adapted from Lehman (1994). They include:

- **Common to Abundant:** 15 or more individuals per survey period in proper habitat in appropriate season(s)
- **Uncommon to Fairly Common:** 1 to 15 individuals per survey period in proper habitat in appropriate season(s)
- **Rare:** 1 to 15 individuals per appropriate season(s) in proper habitat or infrequent
- **Very Rare:** Average of fewer than 1 record per appropriate season(s), or very infrequent
- **Casual:** 2 to 10 records all time
- **Accidental:** 1 record all time

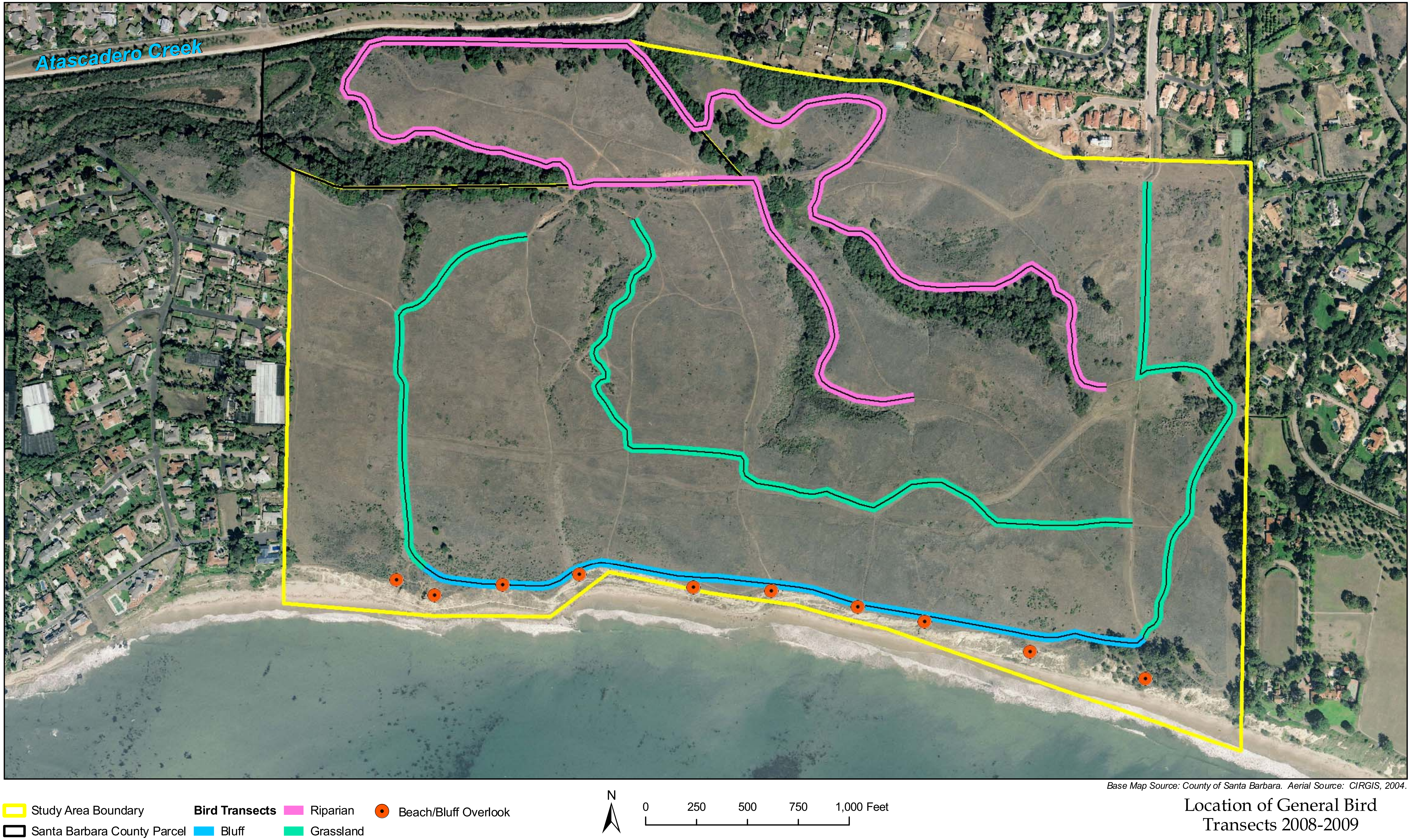
General Avian Surveys

Field surveys for avian species were conducted twice monthly at two week intervals, unless inclement weather (e.g. rain) necessitated otherwise, from April 2008 through April 2009. Surveys followed the Emlen Line-transect method, as described by Bibby *et al.* (1992). Surveys were initiated approximately 15 minutes after sunrise, and lasted between four to five and a half hours. All surveys were conducted along fixed transect routes located within grassland/shrub, riparian/woodland/wetland, and bluff/beach/near-shore ocean habitats (See Figure 3.1-1). Transects were proportionally placed to ensure adequate coverage of each basic habitat type within the study area. The approximate total transect length within each habitat type was: 0.7 miles in bluff/beach habitat, 1.6 miles in grassland/shrub habitat, and 1.8 miles in riparian/woodland/wetland, for a total length of 4.1 transect survey miles.

The survey transects were divided between two ornithologists on each survey day, with one biologist surveying the riparian/woodland/wetland transects and one biologist surveying the grassland/shrub and bluff/beach transects (See Figure 3.1-1). Surveys were conducted by observers walking at a constant pace, periodically stopping to look and listen for birds within 100 meters of the transect. All birds detected visually and/or aurally were recorded and all sensitive species and raptors were mapped, regardless of their distance from the line transect. Biologists also attempted to record each sensitive or raptor species age (using plumage characteristics), sex, behavior (e.g. foraging, singing, nesting, flying overhead, disturbed, etc.), perch and/or forage substrate, when notable, and heterospecific (same species) and conspecific (different species) interactions (e.g. aggression), also when notable. Breeding behavior for all species, whether general or sensitive, was recorded. Biologists alternated which transect segments were surveyed first, middle, or last and from which direction to avoid time biases. Additionally, biologist alternated habitat transect types to avoid surveyor biases within habitats to the greatest extent possible.

Local Species of Interest

In April 2008, local field biologist John Storrer identified several locally common bird species that were considered of special interest due to their regional restriction in South Coast Santa Barbara County (Storrer communication 4/21/08). These species included: white-throated swift (*Aeronautes saxatalis*), savannah sparrow (*Passerculus sandwichensis*), blue grosbeak (*Passerina caerulea*), and western meadowlark (*Sturnella neglecta*). None of these species are currently listed as sensitive species by CDFG and are not included on CDFG's Special Animal List. While no specific focused surveys were conducted for these species, biologists took special effort to map them during all bird survey efforts, and to identify their status within the study area (e.g. breeding, non-breeding, wintering, etc.).



Base Map Source: County of Santa Barbara. Aerial Source: CIRGIS, 2004.

Location of General Bird Transects 2008-2009

Figure 3.1-1

Focused Sensitive Species Surveys

Additional survey efforts were conducted to determine the status of sensitive species that had the potential to occur within or adjacent to the study area, were observed during previous studies, and/or were actually observed during the current study. These additional efforts were primarily focused on species that occurred within the study area within their respective season of concern (e.g. nesting, wintering grounds) and for which appropriate habitat existed on site. Focused surveys were typically conducted in conjunction with the general bird, raptor, and white-tailed kite surveys. Therefore, these surveys were most commonly conducted during the early- to mid-morning hours and the mid- to late-afternoon to dusk hours. Four after dusk to several hours after full dark surveys were conducted for nocturnal species. Handheld playback equipment with recordings of species specific vocalizations was used occasionally in an effort to solicit a response from species that had the potential to occur within or adjacent to the study area, but had not yet been observed during the current study. All individuals that were detected visually and/or aurally within and or near the study area were recorded and mapped, and biologists attempted to record each individual's age, sex, behavior, perch and/or forage substrate, and heterospecific and conspecific interactions.

Raptor Surveys

Raptor surveys were conducted throughout the duration of the study. Breeding season surveys were conducted twice monthly at two week intervals from April through June 2008 and from December 2008 through early June 2009, while fall/winter surveys were conducted monthly at four week intervals from July through November 2008. Surveys lasted from 3.5 to 5.5 hours, and were conducted during the early- to mid-morning hours or the mid- to late-afternoon hours. Four late-afternoon to after-dark surveys, which incorporated the use of play-back equipment, were conducted in an effort to detect owls. Raptor surveys were conducted through the use of non-fixed, meandering-transects, which consisted of two ornithologists "wandering" the study area to optimally cover each habitat type. As necessary, biologists would stand at fixed point locations of higher elevation to survey large expanses of the study area and surrounding habitats. Biologists recorded all raptor species that were detected visually and/or aurally within and or near the study area, and attempted to record each individual's age, sex, behavior, perch and/or forage substrate, when notable, and heterospecific and conspecific interactions, also when notable. Focused observations were conducted for raptors exhibiting breeding or foraging behavior or interacting with white-tailed kites.

Focused Burrowing Owl Surveys

A State Species of Special Concern, burrowing owl populations along coastal California have decreased precipitously, with this species no longer considered a breeding bird along the South Coast of Santa Barbara County. Nonetheless, because burrowing owls have been detected during previous studies and suitable habitat is known to occur at the site, further investigation into its breeding and wintering status was appropriate.

Burrowing owl surveys were conducted in general accordance with the California Burrowing Owl Consortium's Survey Protocol, which was adopted by the California Department of Fish and Game in 1991. As appropriate habitat and former presence was known within the study area, the Phase I – Habitat Assessment and Phase II – Burrow Surveys were not necessary, though the location of ground squirrel burrows were noted in the field and searched for evidence of owl sign. Phase III –Burrowing Owl Surveys, Census and Mapping, which are directed towards determining owl presence, and use of the study area were performed as part of the ongoing general avian surveys, raptor surveys, white-tailed kite behavioral surveys, and other field surveys. Field biologists were present throughout various portions of the site on numerous days during the core burrowing owl nesting season (April 15 to July 15). Avian observations included both dawn and dusk surveys on multiple days, which met the Consortium's Survey Protocol of two dawn and two dusk surveys conducted on four separate days. General winter surveys were also conducted between December 1 and January 31 in conjunction with other bird survey efforts. Biologists regularly searched appropriate burrowing owl habitat throughout the entire study period while conducting other bird surveys. In particular, burrowing owls were searched for in suitable habitat, that may or may not have included area with potential burrows, and within areas where burrowing owl had been previously identified by other researchers and/or ornithologists. Biologist surveyed for the presence or absence of burrowing owl or their sign (burrows, pellets, white-wash, feathers, etc.) within all suitable grassland habitat to ensure complete coverage of the habitat. Adjacent areas with appropriate habitat within 150 meters of the study area were also surveyed using binoculars. Any individuals or sign that were detected within and or adjacent to the study area were recorded and mapped, along with basic biological information.

White-Tailed Kite Surveys

White-tailed kite surveys were conducted throughout the duration of the study and were divided into three behavior specific surveys: Breeding, Roosting, and Foraging. These surveys were specifically focused on determining white-tailed kite breeding, roosting, and foraging use within or adjacent to the study area, and therefore did not include off-site surveys. Surveys generally lasted between 2 to 3 hours and were often conducted in conjunction with other bird surveys. All white-tailed kite data were conducted by direct observations of the individual(s), and biologists frequently moved around the study area to locate and/or observe all individuals and/or pairs. In addition to the survey specific data collected (see below), data recorded for all survey types included perch locations, prey species (if determined), heterospecific and conspecific interactions, and any other pertinent information. Additionally, standard weather parameters and the beginning and ending survey times were recorded. Binoculars and spotting scopes, as needed, were used to aid in all behavioral observations. Surveys were not conducted during adverse weather conditions.

Breeding Surveys. Specific breeding season surveys were conducted twice monthly at two week intervals from February through June 2009. Biologists also collected data for the 2008 breeding season as other bird surveys permitted. Breeding surveys were primarily conducted during the early- to mid-morning hours. The goal of the breeding surveys was to determine 1) the number of pairs breeding within the study site, 2) nest locations, 3) substrate species, 4) the number of nesting attempts per pair, 5) the outcome of each nest (fledge or fail), 6) the number of young successfully fledged per nesting attempt, and 7) the approximate breeding season beginning and ending dates. To this end, the following pertinent breeding behavioral data were recorded and/or mapped: pair bonding activities (e.g. proximity perching, transfer of food, aerial displays and interactions, pseudo-copulation), copulation, nest building and nest up-keep, incubation/brooding, transport of food to the nest, territory and nest defense, and post-fledging parental care.

Roosting Surveys. Roosting surveys were conducted monthly at four week intervals from mid-September through November 2008, and twice monthly at two week intervals from December 2008 through mid February 2009. These surveys were only conducted during the late-afternoon and evening hours. The goal of the roost surveys was to determine if kites were utilizing the study site as a communal roost location. To this end, biologists carefully observed kites foraging within the study area during the winter period to determine where they went near dusk. Additionally, biologists were observant to any kites flying into the study site around dusk. Roosting surveys were generally conducted until near full dark to capture final roosting locations of kites. Pertinent roosting information collected and/or mapped included: the number of individuals observed within the study site near dusk, the number of kites flying into the site near dusk, direction of flight to roost (if off site), the roost location (if possible when off site),the total number of kites at the roost, and the roost species/habitat type.

Foraging Surveys. Foraging surveys were conducted twice monthly at two week intervals from mid-April 2008 through mid-April 2009. Foraging surveys were conducted during both the early- to mid-morning hours and the mid- to late-afternoon hours. Each survey was conducted by two biologists dividing the study area in half, with each focusing on individual foraging birds within their given area. Observers remained in near constant communication to ensure that duplicate data were not collected as individual kites moved throughout the study area. Forging data were primarily collected for adult white-tailed kites only, and juvenile kite foraging data collected from May – July 2008 was excluded from all data analyses to remove possible bias associated with fledgling and juvenile birds learning to hunt.

Biologist conducted focal sampling for individual foraging kites in discrete foraging bouts, which constituted a specific behavior pattern (i.e. foraging: flight, hover, dive, strike, and/or capture) occurring continuously for a discrete time interval. A foraging bout was started either at the time a kite left a perch to begin hunting, or if already in the air, 15 seconds after the individual was first observed to eliminate bias. Bouts ended when the bird ceased hunting (returned to perch, engaged in other activities such as conspecific interactions, etc.), flew out of view of the observer, or when the individual successfully made a capture and retuned to a perch or consumed the prey item on the wing. Data recorded and mapped during each foraging bout included: 1) foraging flight path, 2) number and 3) approximate location of hovers, dives, strikes, and prey captures, 4) prey species captured, if possible, 5) the fate of prey (i.e. consumed by captor, passed to mate or fledgling, carried to nest), and 6) time interval (i.e. time each specific foraging bout started and ended). General foraging behavior descriptions and assumptions made for this study are included in Table 3.1-2.

Table 3.1-2 White-Tailed Kite Foraging Behavior Descriptions and Assumptions

Foraging behavior	Description	Assumption	Number possible per foraging bout	Type of data
Foraging	Bird is flying over appropriate grassland/open habitat, is exhibiting foraging behavior by hovering, diving, etc., and is not engaged in other activities, such as chase, perch-to-perch movement, nesting or roosting activity, etc.; movement of bird prior to hover, in between hover locations, and post-dive, strike, and/or capture; results in at least 1 or more hovers	Bird is hunting	1	Line
Hover	Bird is in a stationary location on the wing, usually maintained by rapid wing beats; head typically down; more than one hover may occur and be counted in association with a dive location as bird may perform a series of descending hovers and dives at single location; duration of less than one second up to one minute or longer; may or may not result in a dive	Bird has identified a potential prey item	1 to many	Point
Dive	Always preceded by a hover; bird tucks wings into "V" shape and descends rapidly toward ground; more than one dive may occur and be counted in association with a hover/dive location, as bird may perform a series of descending hovers and dives at single location; may or may not result in a strike	Bird has confirmed prey item	0 to many	Point
Strike	Always preceded by a dive; bird physically strikes ground with talons outstretched; typically accompanied by kecking call at time of impact; may or may not result in a capture	Bird has attempted to capture prey	0 to many, but typically 0-2	Point
Capture	Always preceded by a strike; bird has successfully captured a prey item; may be eaten on wing (if small) or carried back to perch; may or may not result (if prey eaten on wing) in a new foraging bout	Bird has successfully captured prey	0 to 1	Point

3.1.3 RESULTS

General Avian Surveys

A total of 150 bird species were detected within or adjacent to the study area between April 2008 and mid-June 2009 (Appendix E). Of those species regularly occurring within the study area, more species were observed in the riparian/wetland habitats than the grassland/scrub habitat. Of the 150 species detected during the study period, 110 were "general" species with no special status, four were of local interest, and 36 were special-status species. Table 3.1-3 lists those species of with special-status that were observed during the survey period. The table details whether the species occurred within the study area within their respective season of concern (e.g. nesting, wintering grounds) and whether corresponding appropriate habitat of concern existed on site. A discussion of each species observed and their use of the site (e.g. breeding, migratory, wintering) follows Table 3.1-3. Life history accounts are based largely on Zeiner (1990) and Wheeler (2003).

Local Species of Interest

White-throated swift, savannah sparrow, blue grosbeak, and western meadowlark were observed within the study area (Appendix E). **White-throated swift** were regularly observed throughout the nesting season in 2008 and 2009. Individuals were frequently observed foraging along the bluffs and throughout the central and southern grasslands. Several observations of individuals attending cavities along the bluffs indicate that white-throated swift breed within the study area. A maximum of six swift were observed during any one survey during the breeding season. Individuals were less frequently detected foraging over the grasslands during the winter period. **Blue grosbeak**, a summer breeding species, were detected during both the 2008 and 2009 nesting season. A maximum of four males were regularly detected singing throughout the grassland and scrub habitat within the study area. Female grosbeak were also observed, but in few numbers. Pairs were known to have bred within the study area due to the presence of dependent juveniles being cared for by resident males. **Savannah sparrow** and **western meadowlark** were commonly observed winter residents. Savannah sparrows were observed individually and in small flocks throughout all grassland and scrub habitat, while western meadowlark flocks were primarily detected in the central and western grasslands of the mesa. In addition, **horned larks** were detected briefly twice as transient species. The larks seen could not be identified to the watch listed subspecies (California horned lark), and multiple horned lark subspecies occur along the coast during winter and migration periods.

Focused Sensitive-Species Surveys

Of the 150 bird species that were detected during the study period, 36 are considered special status species (Appendix E). Point detection locations for these species are provided in Figure 3.1-2. The California brown pelican is listed as State Endangered (delisted by the U.S. Fish and Wildlife Service, November 17, 2009), the peregrine falcon is considered State Endangered and Fully Protected and is Federally Delisted, and the white-tailed kite is State Fully Protected. Of the remaining 33 special-status species, CDFG considers 12 to be Species of Special Concern, have placed nine on their Watch List, and list 12 as Special Animals. Twenty-two of the 36 sensitive species were not detected during the particular season (ie: wintering grounds, summer breeding) or habitat element (ie: nesting colony location, rookery) of concern (Table 3.1-3). The remaining 14 sensitive species were directly observed or sign of them was found (e.g. feathers, pellets, etc.) during the appropriate season of concern within or adjacent to the study area. However, of these 14 species, only nine species were regularly detected on multiple surveys during the appropriate season and for which appropriate habitat occurs on site for that season (Table 3.1-3). These species include: white-tailed kite, northern harrier, Cooper's hawk, Allen's hummingbird, Nuttall's woodpecker, loggerhead shrike, oak titmouse, yellow warbler, and grasshopper sparrow. Year-round residents included: white-tailed kite, Cooper's hawk, Nuttall's woodpecker, and oak titmouse. Seasonal residence included: Breeding – Allen's hummingbird, yellow warbler, and grasshopper sparrow; Winter – northern harrier and loggerhead shrike. Non-raptor species (Allen's hummingbird, Nuttall's woodpecker, loggerhead shrike, oak titmouse, yellow warbler, and grasshopper sparrow) observational information is provided below. Northern harrier and Cooper's hawk account information is provided below in the Raptor Survey section. White-tailed kite information is provided in a separate section below.

Year-Round Residents

Nuttall's woodpecker (SA – Nesting; Uncommon). This smallish woodpecker is most closely associated with oak and mixed oak/riparian woodlands within California, and extending south to northern Baja California. Lehman (1994) reports it to be a fairly common resident in the coastal and inland valley areas of Santa Barbara County, and at the lower mountain elevations. It forages for insects on oak trees, though it eats cottonwood buds in the spring and occasional berries (Terres, 1980). It nests in self-excavated cavities in willow, oak, alder, elder, cottonwood, sycamore, and occasional fence posts. Nuttall's woodpeckers were detected nearly all survey periods throughout the oak and willow habitats within the study area (Appendix E). Most observations were of single individuals foraging and/or calling. Although no nests or dependent young were observed during the breeding season, this species is assumed to have bred within the study area.

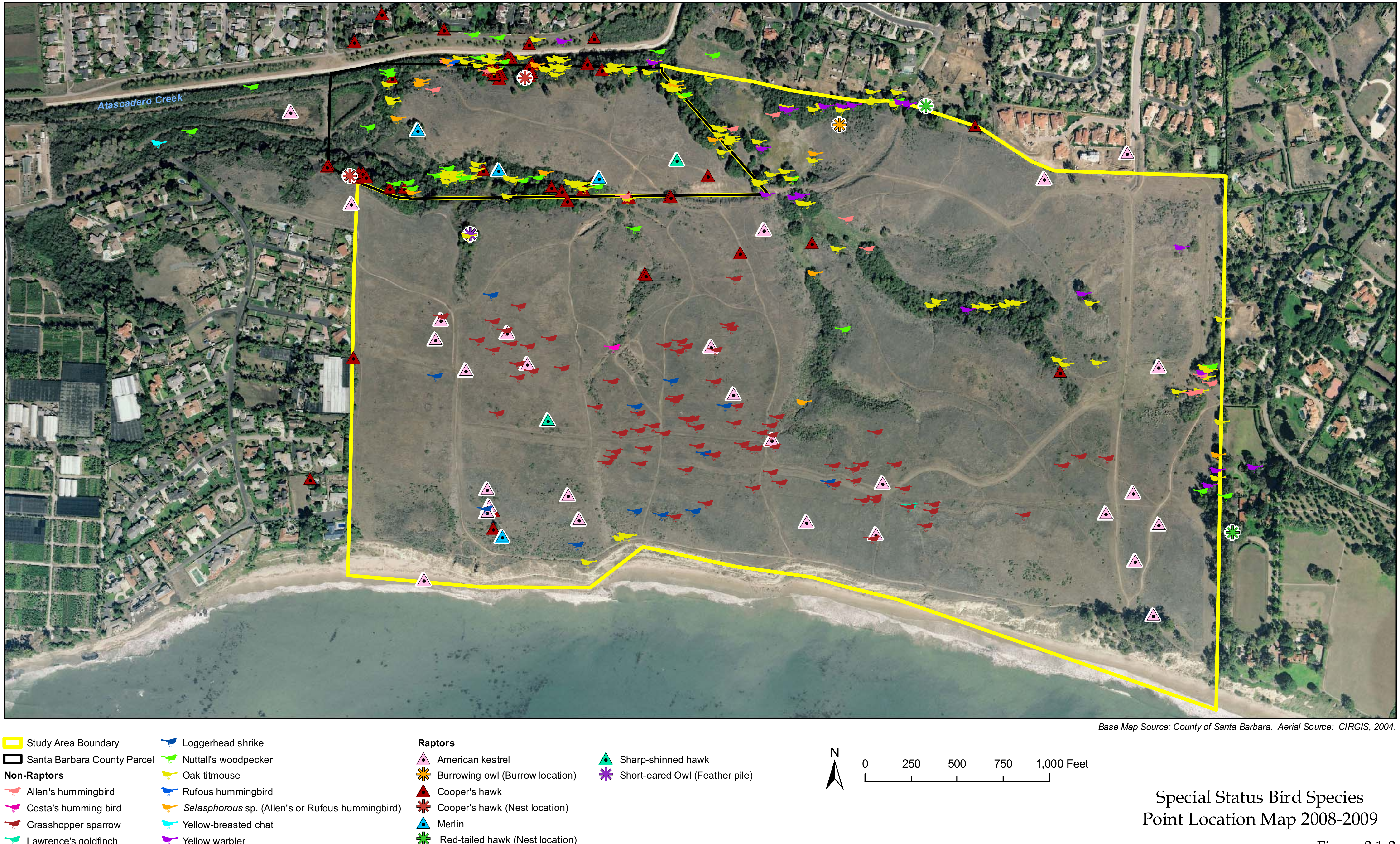
Oak titmouse (SA – Nesting; Common) The oak titmouse is a common resident in a variety of habitats, but is primarily associated with oaks, occurring from the Mexican border to Humboldt County. Oak titmouse find cover mostly in oak and pine-oak woodlands or riparian habitats, constructing nests in woodpecker holes, natural cavities, and nest boxes. Their nests are typically constructed of grass, moss, mud, hair, feathers, and fur. Their diet consists of insects and spiders, berries, acorns, and seeds, foraging on foliage, twigs, branches, trunks, and occasionally on ground (Zeiner et al, 1990). Oak titmouse were detected during all survey periods (Appendix E). Observations were of single individuals, pairs, and family groups throughout the oak and willow habitats within the study area. Oak titmouse are known to have bred within the study area as evidence by dependant juveniles and by detection of a willow cavity nest along Atascadero Creek in 2009.

Summer Seasonal Residents

Allen's hummingbird (SA – Nesting; Uncommon) A regular summer resident (January to July) and migrant along most of the California coast. Breeding is most common in coastal scrub, valley foothill hardwood, and valley foothill riparian habitats. The species' migration is mostly coastal. Allen's feed on the nectar of a wide variety of herbaceous and woody flowering plants; but also eat insects and spiders. Breeding occurs in sparse and open woodlands, coastal redwoods, and sparse to dense scrub habitats with nests having been found attached to eucalyptus, juniper, willow, other trees, vines, shrubs, and ferns (Zeiner et al, 1990). A small population of Allen's hummingbird were regularly observed during both the 2008 and 2009 breeding season (Appendix E). Most detections were of males defending discrete territories within and near the wetland and oak/willow riparian habitats. This species is assumed to have bred within the study area, however no direct nesting observations were made.

Yellow warbler (SSC – Nesting; Uncommon) Nests throughout most of North America with some subspecies nesting in South America. Breeding occurs in well-developed riparian woodlands in lowland and foothill canyons. Territories and home ranges average about 0.5 acres (Zeiner et al, 1990). Yellow warbler feed mostly on insects. Yellow warbler were regularly observed in small numbers during both the 2008 and 2009 breeding season (Appendix E). Detections were primarily of singing males within the wetland and oak/willow riparian habitats. Several male/female pairs were observed, therefore, although no direct nesting observations were made, yellow warbler are assumed to have bred within the study area.

Grasshopper sparrow (SSC – Nesting; Rare) Ranges widely over much of the Continental United States and into southern Canada. An uncommon and local, summer resident, grasshopper sparrows breed in foothills and lowlands west of the Cascade-Sierra Nevada crest from Mendocino and Trinity Counties south to San Diego County. They occur in dry, dense grasslands, especially those with a variety of grasses and tall forbs and scattered shrubs for singing perches. In southern California this species occurs mainly on hillsides and mesas in coastal districts. Territory size can vary from 0.8 acres to 4.3 acres in size and anywhere from 4-30 pairs may be present per 100 acres. Grasshopper sparrow feed primarily on insects,



Special Status Bird Species
Point Location Map 2008-2009

Figure 3.1-2

Table 3.1-3 Sensitive Bird Species Observed at More Mesa April 2008 – June 2009

		In Season of Concern			
Common name	**Federal, State, DFG, or local status [1]**	**Observed/ evidence of**	**Regularly detected**	**Appropriate habitat on site**	**Notes**
Brant	None listed – SSC	Yes	No	No	Observed only once in 2009
Common loon	Nesting – SSC	No	No	No	Observed only once in 2009
California brown pelican	Nesting colony & Communal roosts – FD, FP	Yes	Yes	No	Multiple individuals observed all surveys in/over ocean and flying over bluff; semi-regularly observed on west beach; rarely observed flying over mesa
Double-crested cormorant	Rookery site – WL	Yes	Yes	No	Multiple individuals observed all surveys in/over ocean; semi-regularly observed on west beach; rarely observed flying over bluff
Great blue heron	Rookery site – SA	Yes	Yes	No	Individuals semi-regularly observed flying over mesa and foraging throughout grasslands and scrub
Great egret	Rookery site – SA	Yes	Yes	No	Individuals intermittently to semi-regularly observed flying over mesa and foraging throughout grasslands and scrub
Snowy egret	Rookery site – SA	No	No	No	Individuals semi-regularly observed during winter flying over mesa and foraging in Atascadero Creek
Black-crowned night-heron	Rookery site – SA	Yes	No	No	Individuals irregularly observed flying over mesa
White-faced ibis	Rookery site – WL	No	No	No	Two individuals foraging in Atascadero Creek in March 2008
Osprey	Nesting – WL	Yes	No	No	One individual observed flying over mesa in September and December 2008
White-tailed kite	Nesting – FP	Yes	Yes	Yes	Multiple individuals and/or pairs observed all surveys nesting and foraging throughout mesa
Northern harrier	Nesting – SSC	Yes	Yes	Yes	1-2 individuals (adult and hatch/first-year females) observed hunting throughout mesa August 2008 – April 2009; occasional 3rd individual (adult male) observed
Sharp-shinned hawk	Nesting – WL	No	Yes	No	Individual(s) intermittently observed during winter months
Cooper's hawk	Nesting – WL	Yes	Yes	Yes	Individual(s) (1 nesting pair) observed every survey; successfully nested in 2008 and 2009
Merlin	Wintering – WL	Yes	No	Yes	One individual observed hunting on mesa in April 2008 and April 2009
Peregrine falcon	Nesting – FD, SE, FP	Yes	No	No	One individual observed flying over mesa in September and December 2008 and March 2009
Long-billed curlew	Nesting – WL	Yes	No	No	Multiple individuals regularly to semi-regularly observed foraging on beach during winter; rarely observed flying over mesa
California gull	Nesting colony – WL	Yes	Yes	No	Individuals semi-regularly to intermittently observed flying over ocean, bluff and mesa and resting on beach

Table 3.1-3 Sensitive Bird Species Observed at More Mesa April 2008 – June 2009

		In Season of Concern			
Common name	**Federal, State, DFG, or local status [1]**	**Observed/ evidence of**	**Regularly detected**	**Appropriate habitat on site**	**Notes**
Forster's tern	Nesting colony – SA	No	No	No	Individuals observed foraging near shore in December 2008 and January 2009
Elegant tern	Nesting colony – WL	Yes	Yes	No	Multiple individuals regularly observed foraging near shore June – December 2008
Short-eared owl	Nesting – SSC	Yes	No	Yes	Individual not directly observed - Feather pile found in oak woodland on mesa on May 29, 2008
Burrowing owl	Burrow sites & Some wintering sites – SSC	Yes	No	Yes	Individual not directly observed - single burrow with evidence of past occupation was discovered on April 29, 2008
Black swift	Nesting – SSC	Yes	No	No	Seen only once in 2008
Costa's hummingbird	Nesting – SA	Yes	No	Yes	Seen only once in 2009, unlikely to breed on mesa
Rufous hummingbird	Nesting – SA	No	No	Yes	Observed on two occasions in 2009
Allen's hummingbird	Nesting – SA	Yes	Yes	Yes	Regularly observed during 2008 and 2009 breeding season
Nuttall's woodpecker	Nesting – SA	Yes	Yes	Yes	Detected nearly all survey periods in oak and willow habitats
Olive-sided flycatcher	Nesting – SSC	Yes	No	No	Observed only once in 2008
Loggerhead shrike	Nesting – SSC	Yes	Yes	Yes	Individuals semi-regularly detected within grassland habitat throughout the winter
Oak titmouse	Nesting – SA	Yes	Yes	Yes	Detected all survey periods in oak and willow habitats
Yellow warbler	Nesting – SSC	Yes	Yes	Yes	Small population semi-regularly observed during 2008 and 2009 breeding seasons within willow habitat
Yellow-breasted chat	Nesting – SSC	Yes	No	Yes	Observed once in 2008 and three times in 2009
Lark sparrow	Nesting – SA	No	No	No	Observed once in 2008
Grasshopper sparrow	Nesting – SSC	Yes	Yes	Yes	Small population regularly observed during 2008 breeding season in central grassland/scrub habitat
Yellow-headed blackbird	Nesting – SSC	Yes	No	No	Observed only once
Lawrence's goldfinch	Nesting – SA	No	No	No	Observed once in 2008

[1] **FE** – Federally Endangered, **FT** – Federally Threatened, **FD** - Federally Delisted, **SE** – State Endangered, **ST** – State Threatened, **FP** – California Department of Fish and Game (CDFG) Fully Protected, **SSC** – CDFG Species of Special Concern, **WL** – CDFG Watch List, **SA** – CDFG Special Animal.
Note: Horned larks were seen at the site as a transient, migratory animal and could not be identified as the CDFG "Watch Listed" subspecies.

especially Orthoptera; other invertebrates and grass and forb seeds. Thick cover of grasses and forbs is essential for concealment of nests built in a depression on the ground. The nests are very difficult to locate, usually domed with overhanging grasses with a side entrance.

Grasshopper sparrow were regularly observed in small numbers during the 2008 breeding season (Appendix E). This species was observed within the central grassland/scrub habitat of the study area. Detections primarily consisted of solitary singing males, who often counter-sung with the adjacent male(s). Based on these counter-singing observations and the general movement patterns of the males, it is believed that five males held territories within the study area. It is assumed that grasshopper sparrow breed within the study area. In late June and early July, biologists made two observations of an assumed grasshopper sparrow pair southeast of the bike jump area. During both the June and July observations one individual of the pair was observed carrying vegetation and/or food. In July, observations included four such carries within a 1 hour period, with two of the carries made to the same location. Due to the sensitivity of this species, biologists conducted observations from a distance, thereby making concrete observations of the carried material difficult to determine. No fledglings were observed and no other indications of breeding were detected by this male/pair. No grasshopper sparrows were detected in 2009.

Winter Seasonal Residents

Loggerhead shrike (SSC – Nesting; Rare) A common resident and winter visitor in lowlands and foothills throughout California, Loggerhead shrikes are not known to breed in the Santa Barbara area. They prefer open habitats with scattered shrubs, trees, posts, fences, utility lines, or other perches and occur only rarely in heavily urbanized areas, but are often found in open cropland. This species hunts from perches for prey items including mostly large insects, but also small birds, mammals, amphibians, reptiles, fish, carrion, and other invertebrates (Zeiner, 1990).

Loggerhead shrike were semi-regularly observed during the winter of 2008 (Appendix E). Detections of this species were limited to the central and western grassland/scrub habitats. All observations were of single individuals, and only one bird was detected per survey. Loggerhead shrike were observed January – February 2009, which corresponds to the first two months of its season of concern (Table 3.1-3). However, no individuals were heard singing during this period and no evidence of breeding was observed.

Raptor Surveys

A total of 15 raptors were detected during the study period. Year-round residents included turkey vulture, white-tailed kite, Cooper's hawk, red-shouldered hawk, red-tailed hawk, barn owl, and great horned owl. Winter seasonal residence included northern harrier, sharp-shinned hawk, and American kestrel. Transients (i.e. species with three or fewer observations) included osprey, merlin, and peregrine falcon. Evidence of short-eared owl and burrowing owl were found, however no actual individuals were observed. Sensitive raptor species that were observed directly or indirectly include: Cooper's hawk, northern harrier, sharp-shinned hawk, osprey, merlin, peregrine falcon, short-eared owl, and burrowing owl. Point detection locations for these sensitive species are provided in Figure 3.1-2. Specific observational information about each species is provided below (white-tailed kite are discussed separately).

Year-Round Residents

Turkey vulture (No Special Status; Common) This species is common during the breeding season throughout most of California. Turkey vulture are absent to uncommon in most of the state in winter, with the greatest concentrations in coastal regions. Turkey vulture occur in open stages of most habitats that provide adequate cliffs or large trees for nesting, roosting, and resting. Their diet consists primarily of carrion; and rarely rotting fruit, live birds, eggs, or live mammals. A highly specialized static soarer, turkey vulture forage aerially over roads, fields, open forests, and nearly all open habitats.

Turkey vultures were observed during all survey periods, usually soaring over study area and vicinity (Appendix E). Individuals to small groups were occasionally observed perched on the mesa in the southwestern cypress trees, in the southeast eucalyptus grove, or on a large post in the south-central portion of the mesa. Large flocks were observed on two occasions temporarily day roosting in the before mentioned cypress trees and eucalyptus grove. No permanent large communal roosts occurred within the study area or vicinity. Turkey vultures were not observed scavenging on the mesa and were regularly harassed by Cooper's hawk, white-tailed kite, and American crow.

Cooper's hawk (WL – Nesting; Uncommon) Occurs from southern Canada south into Mexico. Considered a relatively uncommon species, Cooper's hawk utilize dense stands of trees, including oak, conifer and riparian habitat for breeding. In California this species is known to utilize suburban and urban settings with densely foliaged deciduous or coniferous trees. Nesting and foraging usually occur near open water or riparian vegetation. During the winter this species can be found in more open areas with minimal tree growth. Hunting occurs in broken woodland and habitat edges; with captures recorded in air, on the ground, and in vegetation. Nests are usually about 1.5 miles apart with the birds defending an area 330 feet around the nest. The species home range is reported generally from 500 - 1,000 acres.

Cooper's hawks were observed within the study area and vicinity during all survey periods (Appendix E). Observations indicate one resident pair within the study area, with additional transient individuals moving through in fall and winter. Cooper's hawks were observed throughout the study area during the fall and winter months, however breeding season observations were primarily restricted to the northwestern riparian habitat. The resident pair's 2008 nest was discovered in May in a coast live oak (*Quercus agrifolia*) on the County parcel near Atascadero Creek (Figure 3.1-2). The pair successfully fledged at least three young by late June. The 2009 nest was discovered in April, and was located in a coast live oak tree on the western boundary between the County parcel and the mesa along the old railroad bed (Figure 3.1-2). A nestling was observed branching June 10, 2009. Cooper's hawks were frequently noted to be aggressive toward all other raptor species within the study area. Few direct observations of foraging Cooper's hawks occurred. However, in May 2008 an adult was observed collecting a cached small mammal from a coast live oak tree approximately 200 feet (~60 meters) from the nest tree (returned to nest area), and in April 2009 an adult was observed caching a small bird in an oak tree near the nest tree.

Red-shouldered hawk (No Special Status; Uncommon) A common yearlong resident along the California coast in low-elevation riparian woodlands up to 5000 ft. This species inhabits a variety of topographic areas in California, preferring riparian and oak (*Quercus spp*.) woodlands, but also found in eucalyptus groves and suburban areas with nearby woodlots. Nests are typically found in dense riparian habitats, about half way up a tall tree. Nest height averages 50 ft (range 20 80 ft). The nest is located next to the main tree trunk, or on old nests of squirrels, hawks, or crows; lined with strips of bark, dry leaves, and sprigs of evergreens (Call 1978 in Zeiner, 1990). A study of home ranges for red-shoulders in southern California, found the annual home ranges were between 298 acres for six males and 249 acres for seven females (95% HM method; Bloom 1989, Bloom et al. 1993). Mean spacing between nests was over 2,000 feet (Wiley 1975). The red-shoulder has been observed to defend its home range against red-tailed hawks, and great horned owls and have been observed nesting as close as approximately 700 feet from an active red-tailed hawk nest, 180 ft from barred owls, 540 ft from Cooper's Hawks, 1,150 ft from Great

Horned Owls, and 1,050 ft from Ospreys (Poole, 2005). The diet of the red-shouldered hawk is highly varied; including small mammals, snakes, lizards, amphibians, small or young birds, large insects, and carrion. Mainly a perch hunter the red-shoulder perches on trees, snags, and posts, dropping into flight when prey is located. Occasionally hunting takes place when the bird is flying.

Red-shouldered hawk were detected nearly all survey periods, with most detections occurring along the peripheries of the study site and in the adjacent vicinity (Appendix E). Relatively few observations of red-shouldered hawk *within* the study site were made and no individuals were detected hunting on the mesa. Cooper's hawk and white-tailed kite were observed harassing red-shouldered hawk when they ventured into the mesa area during the breeding season. Two resident pairs were observed, one primarily detected utilizing the area north of the County parcel in both 2008 and 2009, and one holding a territory north/northeast of the study site in both 2008 and 2009. Red-shouldered hawk did not nest on the mesa in 2008 or 2009. Juvenile red-shouldered hawk were observed starting in June 2008, however the young were not often observed within the study site.

Red-tailed hawk (No Special Status; Uncommon) is a common, permanent breeding and winter resident and migrant found in almost all California habitats, from lowest to highest elevations. The species breeds throughout California, and winters in all areas without heavy snow cover. Red-tail feed on small mammals up to hares in size, small birds, reptiles, amphibians, and some carrion (Orians and Kuhlman 1956). In winter, the species is largely dependent upon mice, but also takes medium to fairly large birds on the ground. Hunting occurs while soaring and from perches. Red-tails pounce on prey from low, quartering flights, sometimes hovering on wind or air currents. The species is highly territorial during the breeding season. Territories are three-dimensional. Boundaries often follow well-defined physical features (road, waterway, forest edge; Fitch et al. 1946) and remain remarkably stable year-to-year, and even decades, regardless of turnover of individuals (Janes 1984b, 2003, Moorman et al. 1999). Minimum internest distance reported – 1,050 feet (Seidensticker and Reynolds 1971). Nesting densities may be related to perch distribution as well as food availability.

Red-tailed hawks were also detected nearly all survey periods (Appendix E). Although semi-regularly observed soaring over the mesa (although rarely into the interior), over half of all observations occurred along the peripheries of the study site and in the adjacent vicinity. Red-tailed hawks were observed hunting on the mesa only four times, twice over the southwestern bluffs, once over the western County parcel grasslands, and once over the mesa's northern grasslands. No prey captures were noted. Cooper's hawk and white-tailed kite were also observed harassing red-tailed hawk during the breeding season. Three resident pairs were observed in the area, one utilizing the area west/southwest of the mesa in 2008, a second held a territory north of the mesa in 2008 and 2009, and the third utilized a territory east of the study site in both 2008 and 2009. Red-tailed hawk did not nest on the mesa in 2008, however it is suspected that the northern and eastern pairs nested in close proximity to the study area boundary. Juvenile red-tailed hawks were observed during the late summer of 2008, but the young were not often observed within the study site. Two red-tailed hawk nests were found in March and April 2009. Both nests were located outside the study area within *Eucalyptus* groves located on northern and eastern perimeters of the mesa (Figure 3.1-2). At least two large nestlings were observed in the eastern nest in March. The nest was confirmed to still be active two weeks later but all subsequent observations of the nest area have failed to detect fledglings. As the adults are not often observed within or near the study area, it is possible that this nest fledged with the family group remaining in the Hope Ranch area. At least two nestlings were observed in the northern nest in May and June of 2009, and the nest is expected to fledge within the coming month.

Barn owl (No Special Status; Rare) A common, yearlong resident in open habitats including grassland, chaparral, riparian, and other wetlands throughout the state from sea level to an elevation of 5,500 ft. Barn owls are often found near man-made structures. Although nesting is usually on ledges, crevices, or other sheltered areas of cliffs, man-made structures are also used for nesting. Barn owl feed primarily upon mice, rats, voles, pocket gophers, and ground squirrels, as well as shrews, insects, crustaceans, reptiles, and amphibians. Small birds, such as blackbirds, are an important food in winter. The barn owl is primarily nocturnal or crepuscular, hunting on the wing or from a perch.

Barn owl was detected on eight occasions in May, August, September, and October 2008 (Appendix E). On all occasions, a single individual was flushed from a day roost, detected by call during a night survey, or observed hunting in the grasslands of the mesa during the early morning or late afternoon. All but two barn owl detections were in the western-southwestern mesa areas, with the remaining two observations in and/or near the eastern drainages.

Great-horned owl (No Special Status; Uncommon)

Great-horned owl was semi-regularly observed throughout the study period (Appendix E). Observations were likely of a single resident pair. Most detections occurred within the northwestern quadrant of the study area within and near the oak woodland along the northern boundary of the mesa and along the northwest edge of the mesa. Observations were generally of single individuals, however a pair was observed on two occasions. Individual owls were also detected twice within and near the east drainage and once within the northwest wetland. A great-horned owl roost, heavily used in 2008, was located in the southern oak grove of the riparian finger in the west mesa. Cooper's hawk were observed harassing a flushed great-horned owl on one occasion, and nesting white-tailed kite were agitated (e.g. aggressive calling and increased vigilance) on one other occasion when an owl was flushed from the western roost.

Winter Seasonal Residents

Northern harrier (SSC – Nesting; Rare) Occurs as a nesting and wintering species throughout much of the Northern Hemisphere. Frequents meadows, grasslands, open rangelands, fresh and saltwater emergent wetlands, and is seldom found in wooded areas. Northern harrier is a permanent resident of coastal areas. The breeding population has declined, especially in the southern coastal district, but can be locally abundant where suitable habitat remains free of disturbance, especially from intensive agriculture. Northern harrier feed mostly on voles and other small mammals, birds, frogs, small reptiles, crustaceans, insects, and, rarely on fish. Harrier nest on the ground, usually in tall, dense clumps of vegetation, either alone or in loose colonies, and near wetlands. Foraging occurs over open habitats (e.g., prairies, shrub-steppe uplands, marshes). The frequency of use of certain habitats appears related to a combination of prey biomass and vegetative cover (Preston 1990). Areas of short vegetation, e.g., heavily grazed pasture and harvested fields, are underused, whereas idle and abandoned (often wet) fields with vegetative cover are used more than expected (Linner 1980, Bildstein 1987, Preston 1990). Males prefer more open habitats than females and females hunt more in taller and denser vegetation than males do (Bildstein 1987, Temeles 1987). Virtually always hunts on the wing, coursing low (<5 m) over ground with a buoyant, gliding flight; flaps intermittently (Poole, 2005).

Northern harrier was regularly observed hunting throughout all grassland areas of the study area mid-August 2008 – mid-May 2009 (Appendix E). Biologists most frequently observed two individuals, an adult female and a 2008 hatch-year/2009 first-year female, with occasional sightings of an adult male and a second hatch-year female. No more than three northern harriers were observed within the study area during any one survey. Northern harrier was observed March 2008 – mid-May 2009, which corresponds to the first three months of its season of concern (Table 3.1-3). However, no males were detected during this period and no evidence of breeding was observed. No prey captures were observed by foraging harriers. However, an adult female was observed pursuing white-tailed kite with prey on three occasions. On two of these surveys, the kite was able to out distance the harrier and she eventually gave up chase. However, on one of these observations, the harrier was able to catch up to the kite, which was preparing to perch near a second kite, and she performed a very fast upward moving "J" dive at the kite. The startled kite was observed dropping the *Microtus* prey, which was captured mid-air by the harrier. The harrier immediately landed on the ground to consume the prey and was repeatedly dive bombed by the two kites to no avail.

Sharp-shinned hawk (WL – Nesting; Rare) The California range for this species is poorly known. Breeding or summering birds have occurred throughout the state, including the southern mountains, but most probably breed in northern half of state (Small 1994). Sharp-shinned hawks are widely dispersed and seldom-seen nesters that breed mainly in large stands of deciduous, coniferous, and mixed pine-hardwood forests and pine plantations. In temperate areas, nesting coincides with the annual peak in songbird abundance. Sharp-shinned hawks eat mostly small birds, but have also been observed to take small mammals, insects, reptiles, and amphibians. Often hunts as a harrier, in low, gliding flights. Often forages in openings at edges of woodlands, hedgerows, brushy pastures, and shorelines, especially where migrating birds are found. The species' secretive nature and the dense vegetation of its nesting habitat make it difficult to find and study during the breeding season.

Sharp-shinned hawks were semi-regularly observed from mid-October 2008 through mid-March 2009 (Appendix E). Individual birds were observed on 11 occasions during eight survey periods. Most individuals were observed near the edges of riparian and wooded areas, and were primarily detected throughout the northern study area and along the eastern boundary. Despite several observations of hunting sharp-shinned hawk, no direct prey captures were seen. However, in February 2009 an individual was observed flying across the northern mesa with a small mammal in its talons. White-tailed kite and Cassin's kingbird (*Tyrannus vociferans*) were observed mobbing sharp-shinned hawk, which were only observed mobbing American kestrel.

American kestrel (No Special Status; Rare) A common resident throughout California, the American kestrel winters in all habitats except high elevations. Open habitats, in a variety of shrub and early successional forest habitats, forest openings, and various ecotones are utilized by this species. Their nests tend to be located in cavities in trees, snags, rock crevices, cliffs, banks, and buildings. The American kestrel feeds on small mammals, birds, insects, earthworms, reptiles, and amphibians. This species hunts from the perch and rarely pursues prey on wing. This species has been known to be preyed upon by larger raptors.

American kestrels were observed during all survey occasions throughout the study area from mid-August 2008 through early-March 2009 (Appendix E). Although the maximum number of individuals detected during a single survey was seven to eight, typically only two to three individuals were detected during a survey. Established wintering individuals were males, while female detections appeared to be of transient individuals.

Transient

Osprey (WL – Nesting; Casual) Osprey breed in northern California and are considered an uncommon winter visitor along the coast of southern California (Garrett and Dunn, 1981). This species forages primarily on fish; but has also been observed to take mammals, birds, reptiles, amphibians, and invertebrates. Osprey require open, clear waters for foraging: rivers, lakes, reservoirs, bays, estuaries, and surf zones.

Osprey were observed on two occasions in September and December 2008 (Appendix E). On both occasions, a single individual was observed flying across the study area and out of view into the surrounding communities.

Merlin (WL – Wintering; Rare) Uncommon winter migrant from September to May, but does not breed in California. This species utilizes a wide variety of habitats, frequenting coastlines, open grasslands, savannahs, woodlands, lakes, and wetlands. Merlin occur in most of the western half of the state below 3,900 ft. Merlin feed primarily on small birds, shorebirds, small mammals and insects. Searches while flying at low level; attacks with a short dive, or dash from above. Captures prey on ground or in air, after direct pursuit.

Merlins were observed on two occasions in April 2008 and 2009, with a possible sighting also in November 2008 (Appendix E). In April 2008, a merlin was observed on two successive days on and near the County parcel. The individual was observed hunting red-wing blackbirds (*Agelaius phoeniceus*) near the wetland on the western side of the County parcel on one of the days. In April 2009, a single individual was observed briefly mobbing and being mobbed by the resident white-tailed kite pair over the County parcel before flying west over the Flood Control Parcel.

<u>*Peregrine falcon*</u> (FD, SE, FP – Nesting; Casual) Very uncommon breeding resident, and uncommon as a migrant. Active nesting sites are known along the coast north of Santa Barbara. Breeding occurs near wetlands, lakes, rivers, or other water on high cliffs, banks, and dunes. Migrants occur along the coast, and in the western Sierra Nevada in spring and fall. Riparian areas and coastal and inland wetlands are important habitats for this species year-round, especially in non-breeding seasons. Peregrine take a variety of birds up to ducks in size; occasionally mammals, insects, and fish. The Peregrine hunts on the wing, swooping from above onto flying prey. The population has declined drastically in recent years, especially coastal populations.

Peregrine falcons were observed on three occasions in September and December 2008 and in March 2009 (Appendix E). On all occasions, a single individual was observed flying across the study area and out of view into the surrounding communities. Other bird species were noted become increasingly agitated (e.g. increased vocalizations and movement) as the peregrine falcons flew across the mesa.

<u>Detection by Physical Evidence</u>

<u>*Short-eared owl*</u> (SSC – Nesting; Very rare). This medium-sized owl is found within extensive grassland and marshlands, and was considered an uncommon and local winter visitor to the coast (Garrett and Dunn, 1981), where it had historically nested. It ranges from the Arctic Ocean throughout Canada and the northern United States, through the Great Plains to the southeast Texas Coast and along the eastern seaboard to the northern coast of South Carolina. In the west, it is found in the Pacific Northwest, Rockies and most of Nevada and Utah, and south within California except generally in the southern deserts. Lehman (1994) stated that it occurred on More Mesa regularly with 1 or 2 individuals wintering until the late 1980s. A single summer record for the historic “Estero” area of Santa Barbara dates from 1920 (Lehman, 1994).

Short-eared owl was not directly observed within the study area. However, a large feather pile was discovered on May 29, 2008 underneath a coast live oak grove on the west side of the mesa (Refer to Appendix E and Figure 3.1-2). This grove was assumed to have been a great horned owl roost, as an individual owl was flushed from the area on May 29, 2008, and large amounts of white-wash and various feather piles were discovered throughout the study period. Most of the feathers were collected at this time and tentatively identified as short-eared owl by Rincon biologists. Additional feathers were collected by Rincon and local biologist John Storrer on June 11, 2008. These feathers were taken to the Santa Barbara Museum of Natural History (SBMNH) Vertebrate Department for comparison with their collections. John Schmidt (naturalist/illustrator), Peter Gaede (local ornithologist/illustrator), and Paul Collins (curator) examined the feathers and positively identified them as short-eared owl. John Schmidt estimated that the feathers were “less than one week old”, as they were in excellent condition and showed no sign of degradation or fading. Given the historic wintering records for More Mesa, it is assumed that the owl was captured by the great horned owl while present on the mesa.

<u>*Burrowing owl*</u> (SSC – Burrow sites & some wintering sites; Very rare) This small owl frequents open, dry grasslands, deserts, and scrublands, typically around small mammal colonies (ground squirrels). It uses ground squirrel burrows for both roost and nests. It occurs west of the Great Plains from southern Canada to southern South America. Lehman (1994) reported that it was nearly extirpated as a breeder in Santa Barbara County and was a permanent resident only in the Santa Maria and Cuyama Valleys. The

number of wintering birds have also declined sharply, with Lehman (1994) reporting that only 1-2 birds winter in the South Coast area east of Gaviota. It feeds on insects and small mammals.

Burrowing owl was not directly observed within the study area. However, a single burrow with evidence of burrowing owl occupation was discovered on April 29, 2008 (refer to Appendix E and Figure 3.1-2). This burrow was located near the northern mesa boundary, on a slope east of the northwest wetland. Several degraded cast pellets, some small mammal bone fragments, and a few small, old whitewash spots were found on the small, but well developed burrow apron. Although the apron was devoid of grass at the time of discovery, biologists concluded that the burrow had not been occupied by the owl since late winter. In addition to this burrow, fossorial mammal burrows and evidence of their activities were observed throughout the site. Areas of high burrow concentration included the old rail-road cut, the "bike jump", and the bluff, especially a large area on the southeastern side of the mesa). Despite regular inspection during surveys through these areas, no burrowing owl sign was detected at these burrows during the study period. Numerous scattered burrows and small burrow complexes were also discovered within the grasslands throughout most of the study area. Many additional burrow complexes were discovered within the coyote brush (*Baccharis pilularis*) habitat, however these were determined to be unsuitable for burrowing owl. Most burrow complexes were occupied by ground squirrel (*Spermophilus beecheyi*) colonies.

White-Tailed Kite Surveys

White-tailed kite (FP – Nesting; Fairly common) were observed during all surveys throughout the study period (Appendix E). Specific information about each of the three kite survey types is provided below. Additionally, sections discussing white-tailed kite intra- and inter-species interactions and disturbances have been included. Perch locations for 2008-2009 are provided in Figure 3.1-3.

Breeding Surveys.

Two pairs nested within the study area in 2008, while in 2009 there were three nesting pairs. A total of six young were produced in 2008, with each pair successfully fledging three young. As of June 10, 2009, a total of four young had already been fledged by a single pair. Two additional juvenile kites, not from pairs nesting on More Mesa, were observed with the four More Mesa fledglings on May 28, 2009. The kite pair that successfully fledged young built a second nest, which was active at the time surveys ended in July, 2009, but appeared to have fledged 1-2 young. As of June 10, the two other pairs also had active nests, and by July, both appeared to have fledged young. A summary of 2008 and 2009 kite breeding is provided in Table 3.1-4. Specific and more detailed information for each pair within each nesting year is provided below.

2008 Breeding Season. Although focused white-tailed kite breeding season surveys were not conducted in 2008, biologists were able to gather pertinent breeding information while conducting other bird surveys. Two pairs of white-tailed kite nested within the study area during the 2008 nesting period, and were identified as the "East Pair" and the "West Pair" (Table 3.1-4). Based on communications with local biologist John Storrer, it is believed that no other pairs attempted to nest within the study area in 2008, and that these two pairs did not attempt and fail prior to the initiation of this study. Therefore, it is believed that each pair only made one nesting attempt in 2008.

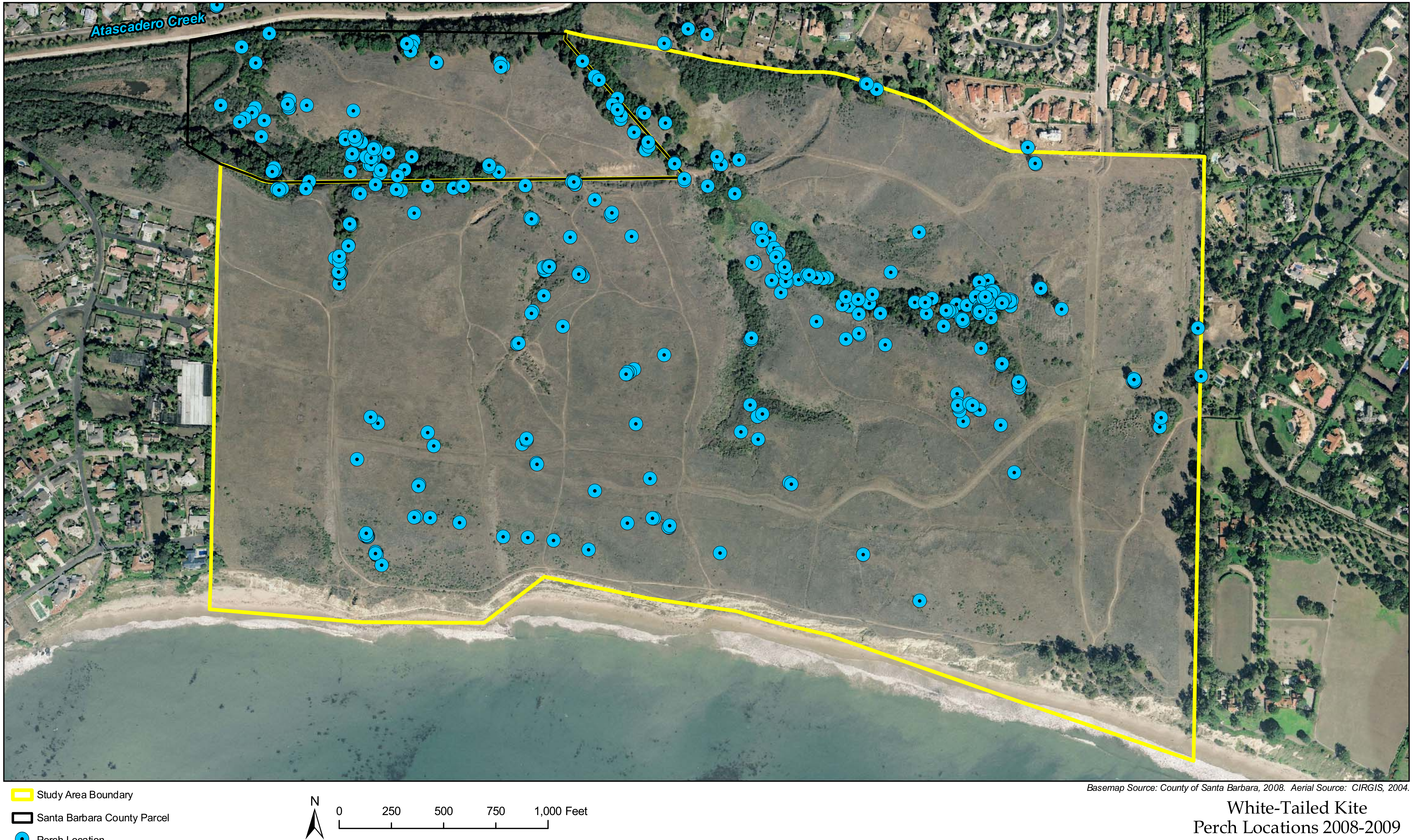
The **East Pair's** nest (N1) was discovered on April 17, 2008 and was located in a coast live oak on the east side of the eastern oak woodland within Drainage B (refer to Figure 3.1-4). This area has been historically known as "Oak Hollow." The nest stage was unknown at the time of discovery (adult observed at nest), however on April 30 at least three fully feathered young were seen in the nest. On this date the nestlings were observed standing on the nest rim, wing flapping, and calling. This nest was confirmed to have fledged three young by May 13. The **West Pair's** nest (N1) was discovered on April 16, 2008 and was located in a coast live oak on the west side of the western oak woodland along the old railroad cut that is the boundary of the County parcel and the More Mesa site within Drainage A, (Figure 3.1-4). The stage of the nest was unknown at discovery and although biologists confirmed that the nest was still active during the next survey, the stage remained unknown. On May 14, the adults were observed carrying food to the nest. This nest was confirmed to have fledged three young by May 28.

<u>2009 Breeding Season.</u> Three pairs of white-tailed kite nested within the study area and focused nesting observations were conducted to track each pair's breeding cycle (Table 3.1-4). The three pairs were identified as the "East Pair," the "Central Pair," and the "West Pair." The **East Pair** successfully nested at least once and apparently also had a second clutch fledged. Both nests were built in coast live oak on the east side of the eastern oak woodland within Drainage B. The pair was observed building the **first nest** (N1) on January 20, 2009 (Figure 3.1-4). Observations two weeks later, on February 5, were terminated after 2 hours due to heavy rains, however neither adult was observed approaching the nest and it was assumed to not yet contain eggs. The nest was confirmed active (i.e. female sitting tight on nest for long durations with male in close attendance) over the next three survey periods, February 18-19 and March 2-3 and 18-19. Two weeks later, on April 2, at least two large, fully feathered nestlings were observed in the nest. One nestling was observed perching on the rim of the nest and wing flapping. This nest was confirmed to have fledged four young by April 14. As the pair had already initiated their second nest by this time, these fledglings were primarily attended to by the male over the next 1 ½ months. On May 28 biologists witnessed the adult(s) periodically mobbing six young kites that were observed perching and foraging throughout the eastern quadrant of the study area. All six young appeared of similar age and it is assumed that the additional two young were produced by an off-More Mesa pair nesting within Goleta Valley, as the other two nesting pairs on More Mesa had not produced young by this time.

The location of the East Pair's **second nest** (N2) was suspected on April 2 when an adult was observed dropping into the top of a coast live oak approximately 155 feet to the southwest of the first nest on several occasions over a 2 hour period (Figure 3.1-4). Although no vegetation carries were observed to this location, the adult was observed spending long periods in this oak and could be seen moving around as if adjusting sticks. This nest location was confirmed on April 14 when observations included casual nest building and an adult sitting in the nest for long periods. Biologists confirmed that this nest was active over the next two survey periods, April 30 and May 13, however no adults were observed approaching the nest on May 28 and June 10. On July 2, a total of 6 juveniles (in two groups of 3) were seen in the eastern territory, with a single juvenile chasing an adult in the northeast corner about 20 minutes later. While two of the juveniles may have been from an offsite nest, it appears that N2 fledged some young also (probably 1-2).

The **Central Pair** made two nesting attempts during the 2009 breeding season. Biologists discovered the **first nest** (N1) on February 18 when the pair was observed nest building in a coast live oak in the central area of the eastern oak woodland within Drainage B. Biologists confirmed that this nest was active during the following two survey periods, March 2-3 and 18-19. However, on April 2 the pair was observed building a **second nest** (N2) in a coast live oak approximately 80 feet to the northeast and were not seen approaching the first nest over a 3 ½ hour period. It is likely that the first nest had failed by April 1 as during a brief observation period, the pair was observed copulating and not attending the nest site. The cause of the nest failure is unknown. The second nest was confirmed active over the next three survey periods, April 16, 30, and May 13. No adults were observed approaching the nest on May 28 and June 10. On July 2, a total of 3 juveniles and an adult were located in this territory, with the three juveniles in younger plumage than the 6 juveniles seen in the eastern territory. Therefore it is assumed that this (or the western territory) successfully fledged additional young.

The **West Pair** was observed nest building at three separate locations in mid-February – mid-April 2009. The pair was first observed building (N1) on February 18 in a coast live oak on the west side of the western oak woodland within Drainage A. However, the following day, February 19, biologists observed the pair building (N2) in a coast live oak on the eastern side of the same drainage. The following survey period, March 2-3, the pair was observed nest building (N3) in a tall *Eucalyptus* due north of the



White-Tailed Kite
Perch Locations 2008-2009

Figure 3.1-3

White-Tailed Kite
Nest Locations 2008-2009

Figure 3.1-4

northwest corner of the County parcel and Atascadero Creek and immediately north of the Atascadero Creek bike path. During the following survey period, March 18-19, the pair was observed briefly copulating and attending (i.e. sitting in nest, nesting building, proximity perching) this same nest. However, two weeks later, April 1-2, the pair was observed copulating and attending the **first nest** (N1) originally observed on February 18. The pair was still attending N1 on April 16, but did not exhibit any signs of incubation behavior. The nest was determined to be active over the next three survey periods, April 30, May 13 and 28. On June 10, at least three nestlings were observed in this nest. On this same date, the adults were observed nest building at a fourth location (N4) in Drainage A, and may be initiating a second attempt. On July 2, one juvenile flew into N1 and perched at the nest, indicating that at least one of the young had fledged. Based on the total number of juveniles seen on July 2, at least 10 juveniles fledged at More Mesa and/or the nearby area in 2009.

Table 3.1-4 Summary of White-Tailed Kite Nesting on More Mesa 2008 – 2009

	Nest	Date discovered	Stage at discovery	Outcome – Date observed	# young produced
2008					
East Pair	N1	4/17/2008	Nestlings	Fledged – 5/13/2008	3
West Pair	N1	4/16/2008	Incubation	Fledged – 5/28/2008	3
2009					
East Pair	N1	1/20/2009	Nest building	Fledged – 4/14/2009	4
	N2	4/2/2009	Nest building	Fledged – 7/2/2009	probably 1-2
Central Pair	N1	2/18/2009	Nest building	Failed – 4/1/2009	-
	N2	4/2/2009	Nest building	Fledged – 7/2/2009	3?
West Pair	N1	2/18/2009, 4/1/2009	Nest building	Fledged – 7/2/2009	at least 1
	N2	2/19/2009	Nest building	Inactive	-
	N3	3/2/2009	Nest building	Inactive	-
	N4	6/10/2009	Nest building	Inactive 7/2/2009	-

Roosting Surveys.

A total of 10 roosting surveys were conducted between mid-September 2008 and mid-February 2009, with three to six kites regularly observed within the study area during this time. A summary of these survey efforts is provided in Table 3.1-5, Summary of White-Tailed Kite Roosting Observations Mid-September 2008 – Mid-February 2009.

On-Site Roosting. No kites were observed flying into the study area near dusk during the study period. Furthermore, resident individuals remaining within the study area were not observed roosting communally, instead apparently choosing to settle as individuals or pairs in unique locations within their general foraging areas. Therefore, no white-tailed kite communal winter roost that included kites from other off-site areas occurred within the study area during the 2008-2009 winter period. Juvenile kites from the 2008 nesting season were observed going to roost within the study area during the early fall on two occasions (July 24 and August 6, 2008) with two individuals roosting together each time (refer to Figure 3.1-5). On both occasions, the individuals were observed settling down into willows, and on July 24, an adult was observed flying into the nearby oak woodland a short time later, presumably to roost as it was never resighted.

Off-Site Roosting. No kites were observed leaving the study area during the first two roosting surveys, September 18 and 29. The first evidence of white-tailed kite leaving the study area near dusk to presumably roost off site occurred two weeks later on October 16, 2008. On this date a single individual was seen flying out of view north of the County parcel approximately 2 minutes after sunset. Biologists did not observe the other three kites then present leaving the study area. During the next roosting survey, on November 11, biologists were able to track two kites (of four present) leaving from the east mesa as they flew northwest over Goleta and into the foothills north of the city approximately 12 minutes before sunset. The flight pattern was direct, and the birds were not observed stopping or foraging before being lost from view approximately 2 ¼ miles from the northern boundary of the study area. A third kite was also observed heading in this same direction approximately 3 minutes before sunset, but biologists were unable to track this individual as far as the others. It is unknown if the fourth bird left the site. On the next survey, December 9, three individuals (of five present) were again observed leaving the study area and heading toward this location. It is unknown if the remaining two kites left the mesa.

On December 29, biologists observed that the kites leaving the mesa near dusk were no longer heading north over Goleta. Instead biologists observed at least five individuals, the maximum number of kites observed within the study area that survey period, perching in tall trees, flying around and casually interacting within the residential area north of the study area between Atascadero Creek and Hollister Avenue, approximately ½ mile from the study area. On January 5, biologists again observed at least three of the five kites from the study area go to this same location. A paired investigation (one biologist in the study area and another at the apparent roost site) on January 5 narrowed the roost location area to near the Hollister School on Anita Lane. On the following survey, January 19, four white-tailed kites were observed perching, flying around, and interacting in the area around Hollister School prior to dusk. The kites were tracked to their final roosting location in a large ornamental cypress row, approximately 0.3 miles north of the study area and 320 feet southwest of intersection of Anita Lane and Burtis Street. The kites were first observed flying into the general area approximately 11 minutes before sunset, but did not settle into the cypress row until approximately 23 minutes after sunset. At least four of the six birds previously observed within the study area were seen roosting in the cypress row. On February 18, at least three of the six study area kites were confirmed to roost within this cypress row, and on the last roosting survey, February 19, at least one of the West Pair kites was observed leaving the mesa and heading toward this location. It should be noted that by this date, the East Pair had an active nest and the Central and West Pair's had initiated nest building. Per communications with Mark Holmgren, this roost location had not been used prior to the 2008-2009 winter season. No other white-tailed kite communal roosting location was determined during the 2008-2009 winter season by other biologists.

Table 3.1-5 Summary of White-Tailed Kite Roosting Observations
Mid-September 2008 – Mid-February 2009

Date	Kites in Study Area	Roosting notes	Additional comments
9/18/2008	3	No kites observed leaving mesa	
9/29/2008	4	No kites observed leaving mesa	
10/16/2008	4	1 kite observed flying north; lost soon after leaving mesa	
11/11/2008	4	3 kites observed flying northwest; 2 tracked into Goleta foothills ~ 2 ¼ mi north of mesa	
12/9/2008	5	3 kites observed flying northwest toward Goleta foothills	
12/29/2008	5	5 kites observed in residential neighborhood ~ 0.5 mi north of mesa	Survey delayed 1 week due to storm system
1/5/2009	5	3 kites observed in residential area	
1/19/2009	6	4 kites observed roosting in cypress row in residential area ~ 0.3 mi north of mesa	East Pair observed nest building on 1/20
2/18/2009	6	3 kites observed roosting in cypress row	East Pair with active nest
2/19/2009	6	1 – 2 kites observed leaving mesa and heading toward cypress row	East Pair with active nest; Central and West Pair observed nest building

Foraging Surveys.

During the 2008 breeding season the East Pair and West Pair established loose territories (or primary use areas) that roughly divided the study area in half, but with a substantial zone of overlap through the wetlands and central mesa. Due to the distance between the nesting pairs, few boundary disputes were noted. During the fall and wintering period, adult and juvenile kites from the individual nests were observed expanding their foraging zones, with the individual kites observed foraging from one side of the study area to the other during a single survey. During the 2009 breeding season, three pairs of kites nested within the study area and the foraging habitat area was observed to be less evenly divided between them. Due to the proximity of the Central Pair and semi-regular boundary disputes, the East Pair primarily foraged throughout eastern grasslands of the study site, with most foraging occurring north-northeast and south-southeast of the nest site area (< 1/3 of mesa). As the West Pair nested some distance from the Central Pair, few disputes were observed and the Central Pair appeared to be able to forage further west. However, biologists did not generally observe this pair utilizing more than approximately 1/3 of the mesa, with most foraging occurring north-northwest and south-southwest of the nest area. The West Pair had the largest area of foraging habitat available (>1/3 of the mesa); however, they primarily foraged in the County parcel and in the more northern grasslands south and southeast of the nest site area(s).

Foraging Data. A total of 317 individual foraging bouts, constituting a total of 15.8 hours of white-tailed kite foraging observations, were collected from mid-April 2008 through mid-April 2009 and used in the analysis (refer to Figure 3.1-6). Individual foraging bouts observed averaged 3 minutes and ranged between 15 seconds and 21 minutes. Per the observation protocol, all foraging bouts had to include at least one hover to be included in the analysis. Foraging behaviors were observed as a tiered effect, with kites most frequently seen hovering, followed by diving and striking, and with prey captures observed least frequently. The location of these behaviors is provided in Figure 3.1-7. Each foraging bout averaged 9.2 hovers (range 1 – 53), bouts with dives averaged 2.4 dives (0 – 9), bouts with strikes averaged 1.1 strikes (0 – 2), and bouts with prey captures had 1 capture per bout (Table 3.1-6, Summary of White-Tailed Kite Foraging Observations Mid-April 2008 – Mid-April 2009).

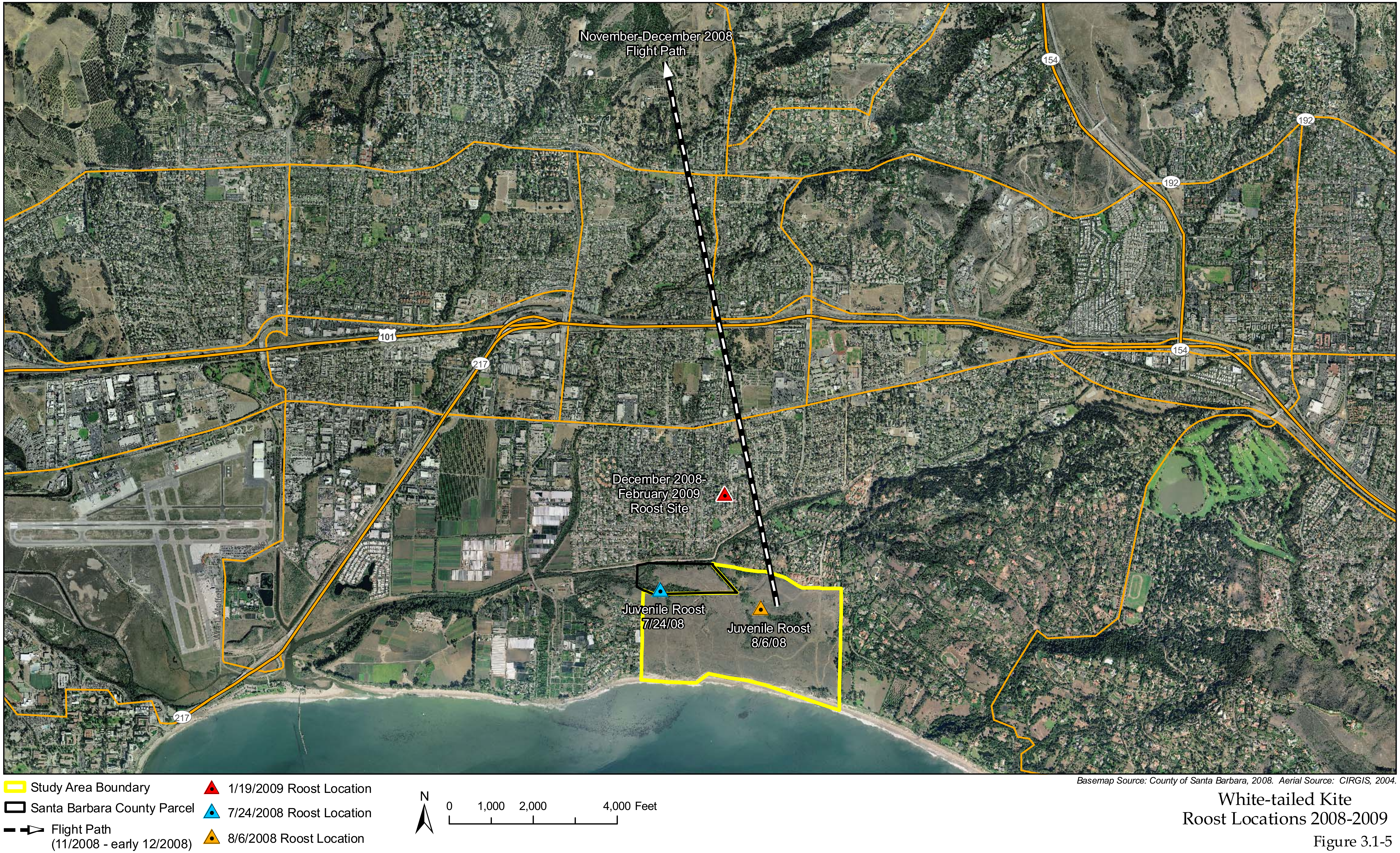
Biologists were able to determine the conclusion of 274 (86.4%) of the 317 foraging bouts: 114 (41.6%) ended with a dive but no strike (i.e. kite pursued prey but did not attempt a capture), 85 (31.0%) ended with a known capture event, 45 (16.4%) terminated in a hover where the kite did not dive during bout (i.e. kite identified a potential prey item but did not pursue it), and 30 (10.9%) terminated in a known strike where it was determined that the kite did not make a capture (i.e. kite pursued prey and attempted to capture it) (Table 3.1-6). Biologists were unable to determine the conclusion of the remaining 43 bouts (13.6%), with 25 (58.1%) ending with the kite diving out of view (may or may not have ended in a strike or capture) and with 18 (41.9%) including a strike, but for which a capture determination could not be made due to distance and/or an obstruction.

White-tailed kites identified and pursued a potential prey item 83.6% (229 bouts of the 274 with known conclusions) of the time they engaged in hunting (Figure 3.1-8). Individuals attempted to capture prey 42.0% (115 bouts) of the time they hunted, or 50.2% of the time they pursued prey. Kites successfully captured prey 31.0% (85 bouts) of the time they engaged in hunting activities, or 73.9% of the time they attempted a capture. Of the 85 foraging observations with known prey captures, 49 (57.7%) were small mammals and 36 (42.4%) were of unknown taxa (e.g. lizard, rodent, insect, etc.). Unknown taxa were recorded when the biologist was unable to identify prey due to distance and/or prey size. A total of 25 (51.0%) of the 49 small mammals were identified as *Microtus*, followed by 18 (36.7%) unknown species, and six (12.2%) mouse or other non-microtine species (Figure 3.1-9). Kites were occasionally observed eating small items on the wing after a strike, which may have been insects or small lizards.

Anecdotal observations of kites during non-foraging surveys were the same as the above foraging and prey capture observations with one exception. On August 20, 2008, biologists observed a juvenile kite perched in a Eucalyptus tree in the eastern mesa that was pulling meat from a stiff item that was in the shape of a very large “drumstick.” One side of the item was thin and straight and appeared mostly bare and lighter colored, while the other end was fat and rounded and appeared to be covered in black feathers. When the biologist was approximately 215 feet (65 meters) away, the juvenile swallowed the item, which was clearly difficult to accomplish and required much work. Given the size and coloration of the prey item, it was thought to possibly be part of a dead American crow that the juvenile had scavenged.

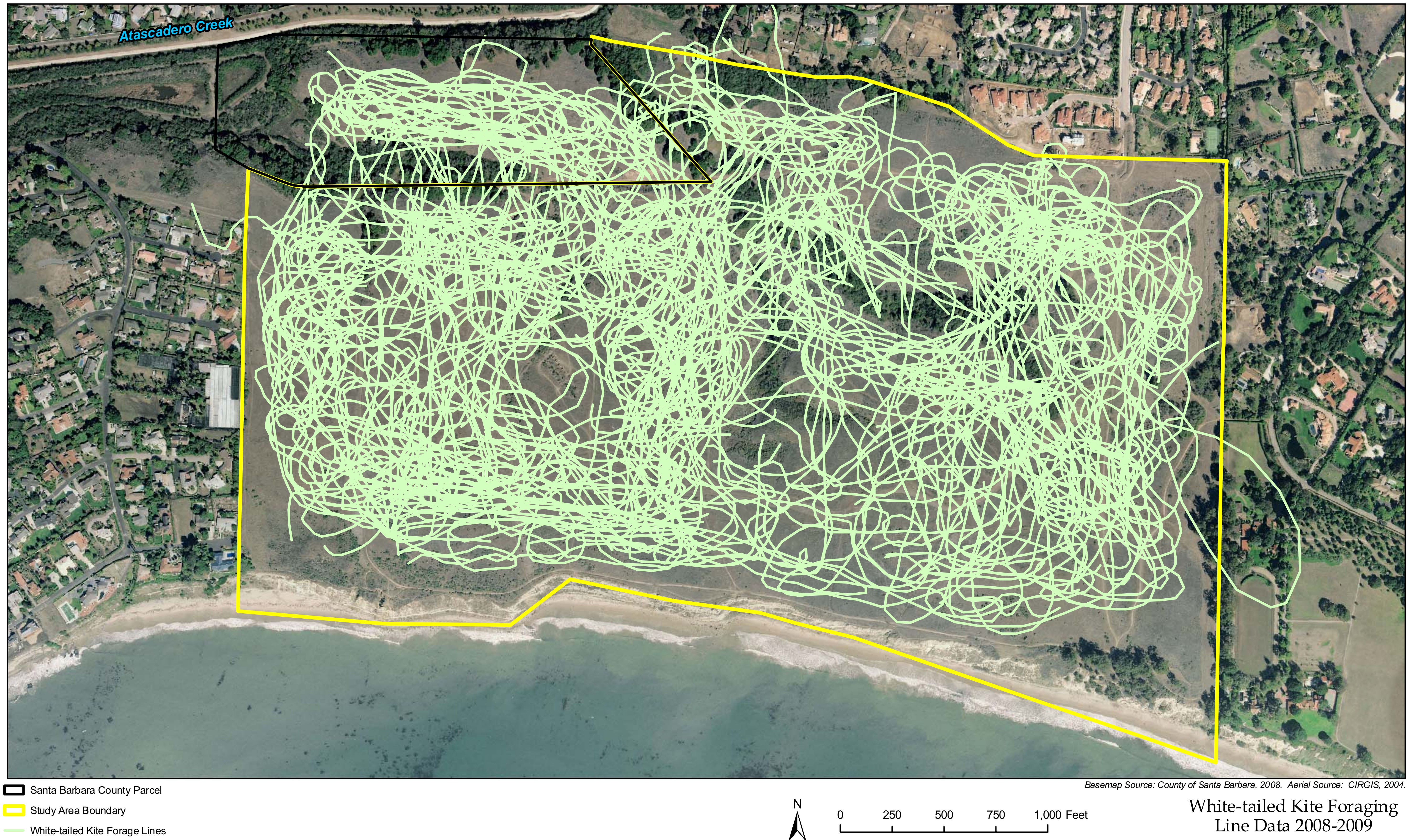
Table 3.1-6 Summary of White-Tailed Kite Foraging Observations
Mid-April 2008 – Mid-April 2009

	Behavior				
Total number observed:	**Hovers**	**Dives**	**Strikes**	**Captures**	**Total**
Foraging bouts (line data)					317
Bouts with known conclusions	45 (16.4%)	114 (41.6%)	30 (10.9%)	85 (31.0%)	274 (86.4%)
Bout with unknown conclusions	0	0	25 (58.1%)	18 (41.9%)	43 (13.6%)
Individual behaviors (point data)	2,910	663	151	85	3,809
Minimum per bout with behavior	1	0	0	0	
Maximum per bout with behavior	53	9	3	1	
Average per bout with behavior	9.2	2.4	1.1	1.0	



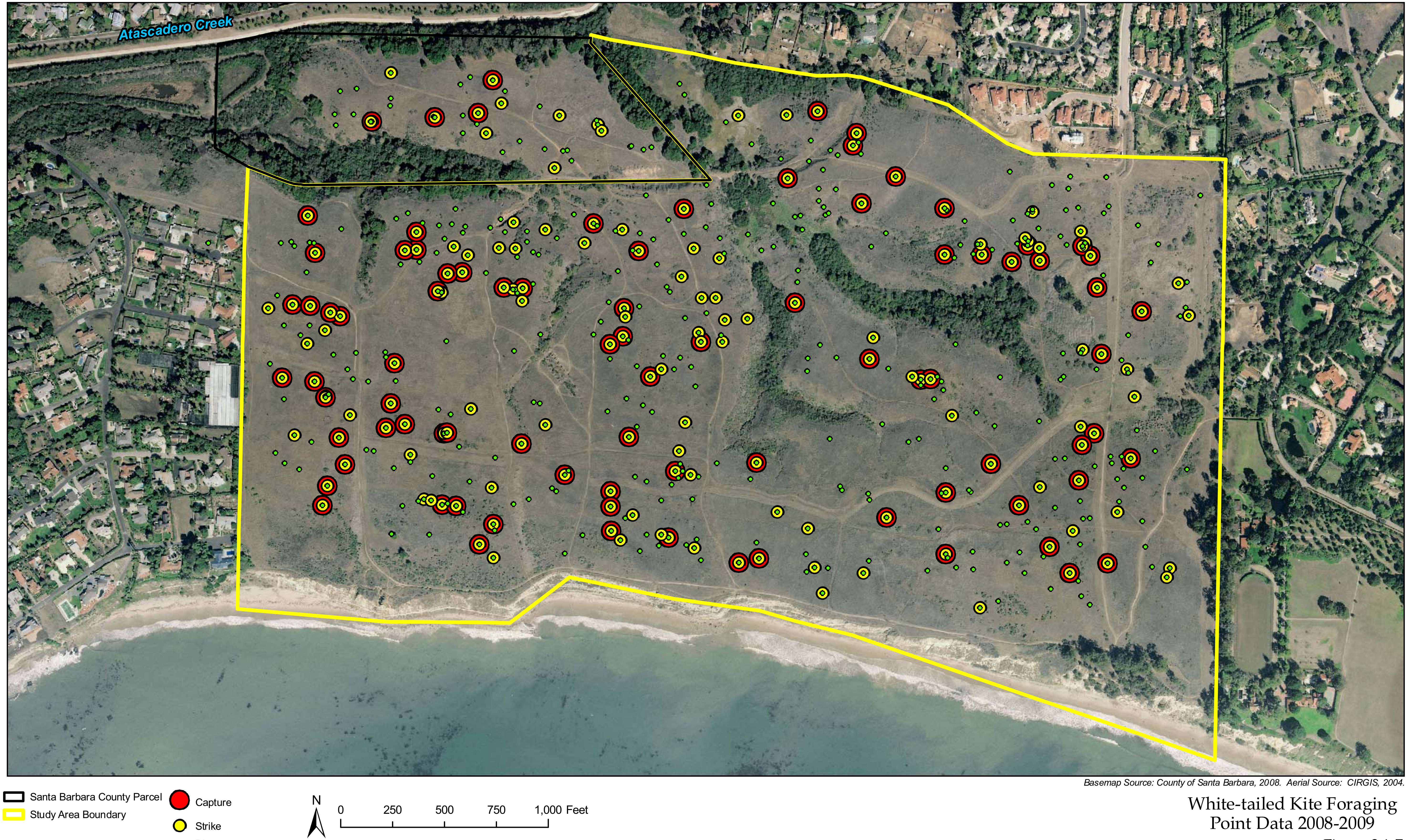
White-tailed Kite
Roost Locations 2008-2009

Figure 3.1-5



White-tailed Kite Foraging Line Data 2008-2009

Figure 3.1-6



Basemap Source: County of Santa Barbara, 2008. Aerial Source: CIRGIS, 2004.

White-tailed Kite Foraging Point Data 2008-2009

Figure 3.1-7

Figure 3.1-8 Percent of Foraging Bouts by White-Tailed Kite Behavior.

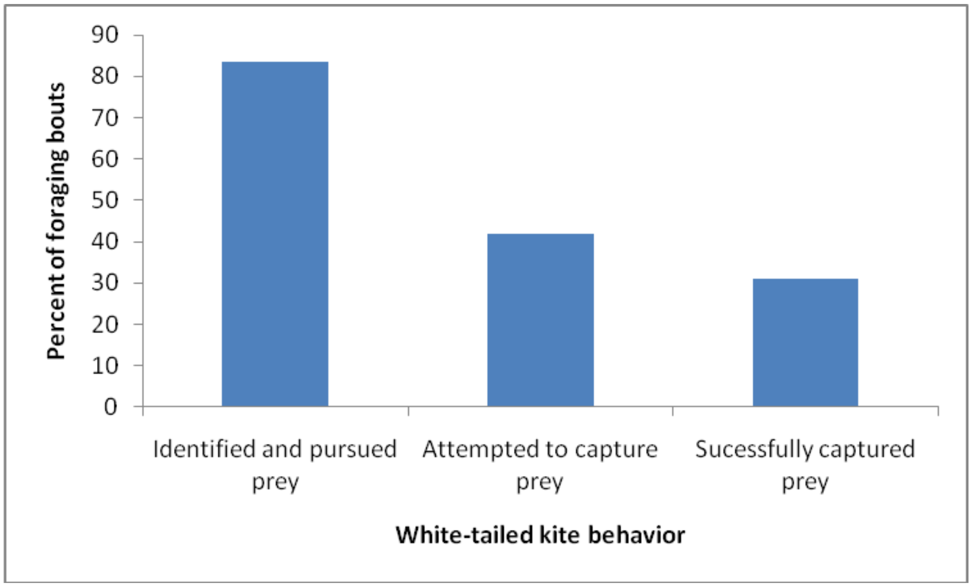
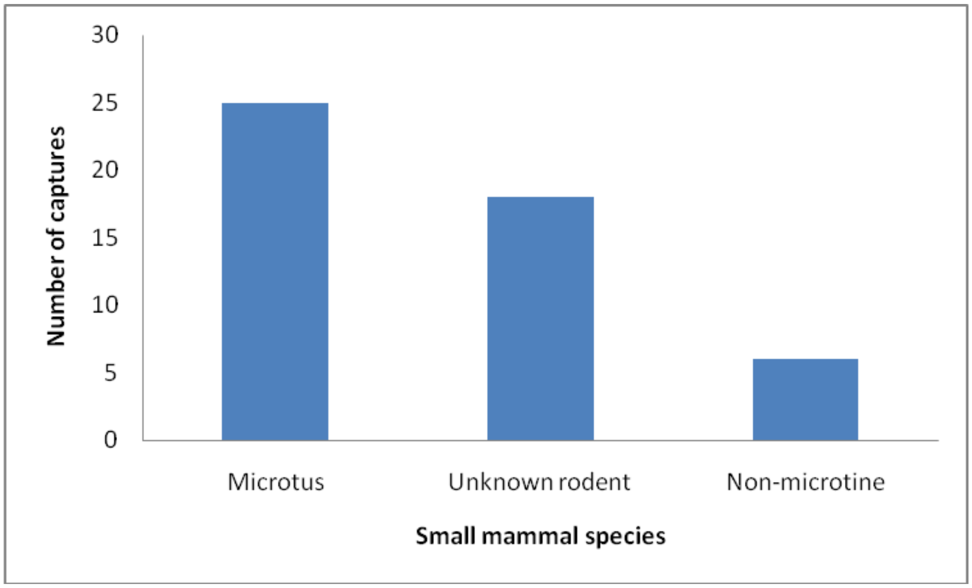


Figure 3.1-9 Number of Small Mammal Captures (N = 49).



White-Tailed Kite Intra- and Inter-Species Interactions

Two kite pairs nested over ½ mile from each other during the 2008 nesting season and they roughly divided the study area in half, with both pairs utilizing the central grassland area and wetlands. Few aggressive interactions were observed between the pairs, with little more than an occasional chase occurring when two birds were foraging in the same general area. Conversely, biologists witnessed heightened levels of inter-pair aggression during the 2009 nesting season between the East Pair and Central Pair nests. The first nesting attempts by these pairs were approximately 600 feet apart, while their second nesting attempts were approximately 420 feet apart. Semi-regular boundary disputes occurred between these two pairs throughout the nesting cycle, however those of greatest intensity and length occurred during the nest building phase of the Central Pair's two nests. These disputes included aggressive calling, chase and dive bomb flights, in-air and on-ground grappling, and perch guarding (i.e. birds perch close to "boundary" for long periods). Although most lengthy disputes, and especially those of greatest intensity, involved two birds (assumed to be between the males as mate usually incubating), the mates would become involved fairly regularly in a more passive form via calls, restlessness when perched, distracted flights, and brief pursuits. Foraging individuals of these pairs that ventured too far east or west and into the adjoining territory were quickly chased off. Few interactions were observed that involved the West Pair. This pair primarily foraged in the County parcel and the western grasslands, infrequently venturing into the central grasslands. Although several brief chase occurrences occurred between the Central and Western Pairs, initiated by the Central Pair, they were generally of short duration and intensity with the Western Pair quickly retreating.

Non-breeding season kite interactions occurred fairly regularly and varied in type and intensity. However, these interactions were generally observed to be more "playful" and were not as intense as those observed during the breeding season. Adults were regularly observed chasing young juveniles, who were often observed following hunting adults and hovering in close proximity. Biologists noted that these juveniles would periodically forage so close to an adult that they interfered with hunting, which usually elicited a brief, but intense chase by the adult. Young birds were observed to steadily decrease their proximity to the adults throughout the summer and fall, and were frequently observed traversing the study area while hunting and interacting with each other.

White-tailed kite were observed to be aggressive toward all other raptorial species occurring within the study area during the nesting season. Levels of aggression were noted to vary considerably with each pair's nesting cycle and were also species dependent. Kites appeared to be most aggressive during the early stages of nesting (i.e. nest building and egg laying), and to a somewhat lesser extent during the early nestling stage. Kites during these stages were seen to actively harass and pursue raptors over 1,000 feet away from their nests. Raptorial species that were most often harassed and with greater intensity (especially during the nesting season) included red-tailed hawk, red-shouldered hawk, northern harrier, and Cooper's hawk. Species that were harassed less often, chased with less intensity and/or duration, or elicited only increased calling and restlessness behavior in perched kites included turkey vulture, great-horned owl, sharp-shinned hawk, merlin, and peregrine falcon.

Northern harrier, Cooper's hawk, merlin, and American crow were the four raptorial species noted to be periodically aggressive toward or harass kites. Cooper's hawk aggression toward kites were noted to be intense (aggressive dive bombing and calling), but of low frequency and duration. Northern harrier were present within the study area between mid-August 2008 and mid-May 2009. An adult female Northern harrier was observed pursuing white-tailed kite with prey on three occasions. The kites were able to out distance the harrier on two occasions, however during the third observation, she was able to catch up to the kite, which was preparing to perch, and performed a very fast upward moving "J" dive at the kite. The kite dropped the *Microtus* prey, which was captured mid-air by the harrier. The harrier landed on the ground to consume the prey and was repeatedly dive-bombed by the two kites to no avail. This interaction was unique, as no other bird species were observed to directly affect a foraging kite in this manner.

American crow were observed by the hundreds traversing the northern boundary area of the study area in the early morning and late afternoon hours, and large flocks were often observed on the mesa itself throughout the daily periods. Biologists semi-regularly observed American crow "ganging up" and harassing perched or foraging white-tailed kites, with most occurring when the kites were located in general proximity to the passing flock. These occurrences were most commonly observed during the fall and winter months during the evening hours when very large crow flocks were traveling west. However, it should be noted that these observations may be biased, as biologists did not conduct regular late afternoon and evening surveys during the kite breeding season. Generally, kites would move away to avoid further harassment from the passing crow flock. It is important to note, that while biologists did observe American crow harassing nesting kites, these were generally of lower intensity and short duration and were not observed to greatly distress the kite pair. Furthermore, on several occasions large crow flocks were observed perching for long durations near nesting kites (even in the same perch tree) with neither species initiating aggressive actions.

Disturbances to White-Tailed Kite.

A wide variety of human activities were noted within the study area (Table 3.1-7). Most activities involved individuals, pairs, and small groups (< 6 people). Larger groups of people (6+) were semi-irregularly observed and very large groups (12+) were seen only a few times. The most frequent types of activities that were observed year-round *within* the grassland and forested areas were: walking, hiking, dog walking, jogging, horseback riding, and bike riding. These activities, while very frequent, were generally limited to the main trails within the study area, and were of low to medium intensity with limited time spent in a single area. Common in-air disturbances included commercial airplanes, small planes and helicopters. These activities, while frequent and of high intensity, generally occurred hundreds of feet over the mesa and so, while loud, did not cause direct on-the-ground disturbance.

Human induced disturbances to white-tailed kite were recorded anecdotally throughout the study, in that biologists did not conduct specific focused observations on how activities affected nesting, perching, and foraging kites. Additionally, biologists did not directly observe all of the activity types listed in Table 3.1-8 (dredging/vegetation clearing Atascadero Creek, fire clearance, trail maintenance, and manure dumping), and some activities were more commonly observed than others simply due to their frequency. Due to the focused bird surveys conducted throughout this survey, biologists were regularly brought in to closer proximity to kites than many of the regularly occurring activities on the mesa. Therefore, the following general kite observations are primarily based on the higher frequency but low to medium intensity activities.

In general, biologists did not regularly observe direct disturbance to kites via human activities. This was attributed to the fact that most activities were limited to the main trails and throughways within the study area, especially the grassland trails, which are generally some distance from where kites were observed to nest and their primary perch locations. The notable exceptions to this are the 2008 and 2009 nests located in the coast live oak along Drainage A, which has a main trail that receives medium use underneath these trees, and the unused nest that was built in 2009 over the bike path north of the County parcel. Biologists noted that kites exhibited similar levels of sensitivity throughout the year, with only slightly elevated levels seen in nesting individuals. Levels of sensitivity varied considerably between adults and juveniles, and between adult individuals and/or pairs. Juvenile kites were observed to be more sensitive to human disturbances of all types than adults, often showing signs of concerns (e.g. increased calls, restlessness, etc.) and moving away sooner than adults would. In both 2008 and 2009, the kite pairs nesting on the east side of the mesa (the East Pairs) were notably less sensitive than the other pairs (the West Pairs and the Central Pair in 2009).

> **Perching.** Typically, an approaching human(s) would elicit calls from a perched kite at 100 meters, but this was observed to occur up to 150 meters or more, especially in juvenile kites. Calls would increase in frequency and intensity as the human moved closer and kites would become increasingly restless and agitated. Perched kites generally would flush when the human was at least 50 m away, but this was noted to range considerably by pairs and age of the kites. Occasionally, kites would remain perched until the human was within 35 m, and more commonly would flush when the human was still 70-100 m away. Kites were observed to react more quickly and at greater distances to larger and/or louder groups or individuals. The same was true for higher intensity activities (e.g. BMX bikes) that caused direct on-the-ground disturbance. White-tailed kites utilizing preferred perch trees located in areas of higher traffic were observed to flush more often than kites utilizing trees or shrubs located in areas of lower traffic. However, kites that perched more frequently in higher use areas were not observed to have an increased tolerance, or decreased sensitivity, to human disturbances.

Table 3.1-7 Human Activities Directly or Indirectly Observed within Study Area April 2008 – June 2009

Activity	Frequency	Duration [1]	Intensity	Area
Walking/Hiking/Dog walking	High	Short	Low	Main trails, beach
Jogging	High	Short	Low	Main trails, beach
Sunbathing	High	Medium	Low	Beach only
Equestrian	Medium	Short	Medium	Main trails
Kid hang out/swinging	Medium to Rare	Medium	Medium	Atascadero Creek trail
Manure dumping (north boundary)	Rare	Short	Low	Off trail
Bike riding	Medium	Short to Medium	Medium	Main trails, bike jump, railroad cut
BMX bike riding	Medium to Rare	Short to Medium	High	Main trails, railroad cut
Bike jump maintenance	Low	Medium	Medium	Bike jump, railroad cut
Trail maintenance (rainy season)	Rare	Short to Medium	Low	Main trails
Fire clearance	Rare	Medium to Long	High	Main trails
Vehicle traffic	Low	Short	Medium	Main trails, Beach
Airsoft gun battles	Low	Short to Medium	Medium	Main trails, off trail
Student classes	Low	Short to Medium	Medium	Main trails, beach, off trail
Dredging/Veg clearing Atascadero Creek	Rare	Medium to Long	High	Atascadero Creek only
Bird watchers	Low	Short to Medium	Low	Main trails, off trail
Specimen (plant) collecting	Rare	Short	Low	Off trail
Biological Study personnel	High	Short to Long	Low to Medium	All areas but beach
Paragliders	Medium to Rare	Medium	Medium	Bluff, south grasslands
Neighbor veg clearing, tree trimming, etc. along boundaries	Low	Medium to Long	Medium to High	Boundary areas
Commercial planes	High	Short	High	Fly over
Helicopters/Small planes	Medium	Short	High	Fly over

[1] *Duration = Short: less than 15 minutes; Medium: one to four hours: Long: four hours or more*

Foraging. Hunting kites appeared to be less often affected by passing humans than perched individuals and in general, humans could approach closer prior to eliciting a response from a foraging bird. However, biologist did observe kites on the wing move away from approaching humans and/or apparently lose focus while hovering or diving (i.e. bird would begin looking around). This was observed to be especially true for juvenile kites attempting to hunt. Kites were rarely observed attempting to capture prey (striking the ground) when humans were within 50 m. As noted above, foraging kites were observed to have greater sensitivity to larger and/or louder groups or individuals and higher intensity activities.

Nesting. Few observations were made of humans approaching the area used by the East and Central Pairs in Drainage B, as compared to the West Pair in Drainage A due to their greater distance from regularly used main trails (refer to Figure 3.1-4). Table 3.1-8 lists the distance of active nests to nearby trails. The closest trail to the East Pair nest area was a light to medium use trail approximately 175 feet from the 2008 nest and in 2009, 85 feet from the N1 nest and 160 feet from the N2 nest. The closest heavy use trails to these nests were to the north and east between approximately 400-635 feet away. The closest trails to the Central Pair nest area were light use trails to the north and south, and light to medium use trail to the south-southeast. The southern light use trail was approximately 160 feet from the N1 nest while the northern light trail was 130 feet from the N2 nest. The light to medium use trail to the south-southeast was approximately 300 feet and 375 feet from the N1 and N2 nests, respectively. The closest heavy use trail to these nests was to the north between approximately 555-630 feet away. Conversely, the closest trail to the West Pair nest area was a medium to heavy use trail located almost directly underneath the 2008 and 2009 nests. The next nearest trails were also medium to heavy use trails in the grasslands to the north and south. The 2008 nest approximately 360-390 feet away from these trails, respectively, while the 2009 active nest was approximately 135 feet away from the nearest trail to the south. It is also notable that the other trees the 2009 West Pair kite were seen nest building in were very close to heavily used trails, including an active bike path north of the County parcel (refer to Figure 3.1-4). These western trails are all medium to heavy use trails that were observed to have a greater intensity of activity occurring on them (e.g. BMX bikes).

Females (assumed) were only observed to flush directly from a nest on two occasions, both in 2008 and as a result of a biologist walking along the edge of the riparian zone pausing briefly to observe the newly discovered nest. Males (assumed) perching in close proximity to these nests were observed to have varying responses. While humans rarely elicited a response from the East Pair males in 2008 and 2009, the Central Pair male in 2009 would typically always call and flush to a more distant perch at a human's approach. Despite the proximity of the 2008 and 2009 West Pair nests to several main trails, few direct disturbance observations were made during either year. The 2008 and 2009 West Pair males exhibited a similar response as described above for the Central Pair male for humans approaching in the grassland areas. Biologists noted these males were generally less disturbed by humans traveling on the main trail underneath the coast live oaks in Drainage A (along the old railroad cut) than by those approaching through the exposed grasslands. It is notable that one of the 2008 West Pair male's primary near-nest perch locations was < 50 feet from this main trail. The male was rarely observed to flush from this perch as long as humans traveling on the trail below kept moving.

Table 3.1-8 Summary of Distance of White-Tailed Kite Nests to Trails

	Nest	Nearest Trail (ft)	Trail Use	2nd Nearest Trail (ft)	Trail Use
2008					
East Pair	N1	175	light-to-medium	400	heavy
West Pair	N1	10	medium-to-heavy	360	medium-to-heavy
2009					
East Pair	N1	85	light-to-medium	510	heavy
	N2	160	light-to-medium	635	heavy
Central Pair	N1	160	light	300	light-to-medium
	N2	130	light	375	light-to-medium
West Pair	N1	10	medium-to-heavy	135	medium-to-heavy

3.1.4 COMPARISON WITH 1982 STUDY

A total of 150 bird species were observed within or adjacent to the study area during the 2008-2009 (2009) study period compared to 118 species recorded during the 1981-1982 (1982) study (Appendix E). Species distribution between the riparian/wetland and grassland areas was consistent between the two studies, with more species observed in the riparian/wetland habitats.

These species results indicate a potential increase in the total number of species present within the study area from 1982 to 2009 by approximately 25 percent. However, a direct comparison in the number of species detected and the number of individuals observed (i.e. their abundance within the study area) between the two studies should be made with caution, as survey methodologies (e.g. transect placement, total observation time per survey, number of observers, lack or inclusion of specialized surveys, etc.) differed considerably. For example, in 1982, a single observer spent approximately two hours during each census surveying the study area for bird species (no description or figure was provided in the UCSB report to determine transect location or consistency in coverage), while in 2009 two observers walked established transects and surveyed between 4 – 5.5 hours for a total of 8 – 11 survey hours per census. Additionally, no focused sensitive-species or raptor surveys were conducted by UCSB in 1982, and no information on non-sensitive raptor status or use was provided to allow comparison. Therefore, the comparative information is limited to basic differences observed between the two studies.

Local Species of Interest

Four species were identified to be of local interest during the 2009 study: white-throated swift, savannah sparrow, blue grosbeak, and western meadowlark. White-throated swift and blue grosbeak were determined to be uncommon to rare in abundance, but known to breed within the study area during both the 2008 and 2009 summer period. Savannah sparrow and western meadowlark were determined to be common winter residents. In 1982, no white-throated swift were reported, and only a single blue grosbeak was observed. However, similar to the current study, numerous savannah sparrow and western meadowlark were observed throughout the winter period.

Special-Status Bird Species

Special-status species observed in the 1982 study but not in the 2009 study include, Vaux's swift (*Chaetura vauxi;* Nesting SSC; 23 observed 1 census), willow flycatcher (*Empidonax traillii*; Nesting SE; 1 observed 1 census), and tri-colored blackbird (*Agelaius tricolor*; Nesting colony SSC; 3 observed 1 census). Each of these species was only observed during a single census period and was therefore only a transient species in 1982. Short-eared owl and burrowing owl were also observed in 1982, while no direct observations were made during the 2009 study. Sensitive species observed during the 2009 surveys, but not observed in 1982 include: brant (*Branta bernicla*), common loon (*Gavia immer*), California brown pelican (*Pelecanus occidentalis californicus*), double-crested cormorant (*Phalacrocorax auritus*), black-crowned night-heron (*Nycticorax nycticorax*), white-faced ibis (*Plegadis chihi*), osprey, merlin (species treated in 1982 text but not recorded as observed during study period), peregrine falcon, long-billed curlew (*Numenius americanus*), Forster's tern (*Sterna forsteri*), elegant tern (*Sterna elegans*), black swift (*Cypseloides niger*), Costa's hummingbird (*Calypte costae*), olive-sided flycatcher (*Contopus cooperi*), yellow-breasted chat (*Icteria virens*), lark sparrow (*Chondestes grammacus*), grasshopper sparrow, and yellow-headed blackbird (*Xanthocephalus xanthocephalus*) (Appendix E).

Of the five sensitive species not directly observed during the 2009 study, the short-eared owl and burrowing owl are notable. In 1982, two individual short-eared owls were observed from October – March, and two observations of burrowing owl were made in early winter. Both species have been historically present in small numbers during the winter period and local biologists have continued to report sightings of both short-eared and burrowing owl in recent years. Although neither of these species was observed in 2009, physical evidence of them was found within the study area. Of the 18 sensitive species observed in 2009 but not in 1982, most were of near-shore species and transient individuals, with only grasshopper sparrow observed in any number during their appropriate season of concern. This species is presumed to have breed within the study area in 2008. Local biologists have historically reported a small number of grasshopper sparrow on More Mesa, but as with the current study, have noted that they do not occur every year.

Raptors

In 1982, 12 species of raptor were reported. Of these species, only the screech owl (*Megascops kennicottii*) was not detected during the 2009 study. In 1982, a pair of screech owls were reported as known residence "along the northeastern edge of the More Mesa study area," but were not directly observed. Despite several post-dark surveys and the use of play-back equipment, no screech owls were detected in 2009. Lehman noted in 1982 that the population in the Goleta Valley was down to, at most, just a few pairs. In 2009, 15 raptor species were detected (13 directly observed, 2 by physical evidence), including osprey, peregrine falcon, barn owl (*Tyto alba*), and great horned owl (*Bubo virginianus*) that were observed in 2009 but not in 1982. With the exception of northern harrier (observed in similar numbers in both studies), merlin, screech owl, burrowing owl, and short-eared owl, no status information was provided in the UCSB report for raptors, thereby preventing any meaningful comparisons between the two studies.

White-Tailed Kite

Breeding.

In 1982, two pairs of white-tailed kite bred within the study area. The report notes that the western pair, which nested in the coast live oaks within the northernmost section of the center drainage, Drainage B, had "not successfully fledged young since June 1978." The eastern pair that nested within the coast live oaks ("Oak Hollow") on the south and east section of Drainage B, successfully fledged three young in June 1982. Similarly, in 2008, two pairs of kites nested within the study area, each producing three young. During the2009 breeding season, three pairs nested within the study area. As of June 2009 one pair had fledged four young and was attempting a second nest. The other two pairs also had active nests as this time, but the outcome of each was undetermined at the time of the preparation of this report.

Roosting.

UCSB (1982) reported that "The principal use of More Mesa by White-tailed Kites is for a major fall and winter roost" and states that between 23-110 kites roosted at More Mesa annually between the winters of 1971-1972 and 1980-1981. During the winter of the UCSB study, 1981-1982, between 21-79 white-tailed kites were observed roosting within the coast live oak and arroyo willows of Drainage Area B. Conversely, no communal winter roost was observed during the winter of 2008-2009 and resident kites were observed leaving the study area to roost off site between October – December.

Foraging.

During the 1982 nesting season, UCSB observed the pairs leaving More Mesa to hunt, traveling off site to the east and northeast. However, throughout the 2009 study, white-tailed kite were observed foraging nearly exclusively within the study area boundaries (refer to Figure 3.1-6). Post-breeding season, the 1982 report noted that no more than four white-tailed kite used More Mesa for foraging and despite up to 79 individuals roosting within the study area that winter, "Only a small number of these birds arriving on the mesa were observed to hunt over the area." UCSB concluded that "More Mesa was not an especially significant area regionally for kites during much of the day during the year of the study." Conversely, during the fall and winter of the 2009 study, between three to six kites were observed foraging on More Mesa, and despite roosting off site, the birds returned daily to hunt within the study area. Observations of the resident white-tailed kites during the 2009 study indicates that More Mesa and the adjacent County parcel served as their exclusive hunting grounds throughout the study period. No off-site hunting was observed and individuals leaving the mesa to roost during the winter were never observed to hunt off site.

3.1.5 REGONAL IMPORTANCE OF MORE MESA

A history of the fluctuations in the California kite population over the past century has been discussed by several authors (Dixon, 1957; Waian, 1973; UCSB, 1982; LSA, 1993; and Wheeler, 2003). Considered nearly extinct in the early 1900's, the kite population rebounded in California between the 1940's and the 1970's. During this period the population spread to parts of Oregon and Washington State. This boom period has been attributed to a drop in egg collection and shooting of raptors, and to the advent of year-round irrigation in California in the 1940's. However, the exact cause of the reversal is uncertain. In the 1970's the kite population in California peaked, marked locally in Santa Barbara in 1975 by an observation of 110 roosting kites at More Mesa. This same year the first kites were recorded in Washington State.

Several studies have attempted to identify the causality of kite population fluctuations. In 1993 LSA compared local annual rainfall data to the number of kites recorded during the Santa Barbara Christmas Bird Count (SBCBC) for years 1961 through 1993. LSA's regression analysis showed no correlation between changes in local precipitation and kites observed in the Santa Barbara area the following winter. Wheeler (2003) noted that the Oregon kite population leveled off by 1990 and decreased until 1993. This coincided with a period when kite were completely absent from the Goleta Valley and would suggest a more far-reaching causality other than local climatic conditions. Disturbance factors have also been considered on the state and regional level; however, kite have responded differently to disturbance factors throughout the western U.S. In Texas kite have adapted to remnant, small-habitat plots and now thrive in an agricultural dominated landscape. To date, the cause of these dramatic fluctuations in kite numbers is undetermined.

As part of the analysis of the biological sensitivity of More Mesa, this study includes an examination of the regional importance of More Mesa for the fluctuating population of kite in Goleta Valley. A summary of nesting and roosting activity within Goleta Valley was developed from a review of available literature sources with known kite breeding and roosting records. In addition to published and unpublished materials (Refer to 3.1, Introduction, above) the County of Santa Barbara commissioned local zoologist, Mark Holmgren, curator for Cheadle Center for Biodiversity and Ecological Restoration (CCBER) [formerly Museum of Systematics and Ecology] to compile kite observation records for more than 30 known nest and roost locations throughout Goleta Valley. The database included published and unpublished records from 1963 through 2009 including anecdotal data from sources such as: CCBER fieldnote archives; personal communications, fieldnotes, and summary data from local biologists and birders; and Mr. Holmgren's survey records. The data was supplemented with results of Rincon's literature review and current observational data. It is important to note that the data ranges over one-half century and was gathered from numerous sources. Although data was screened and included only from confident sources, it is important to note that no systematic methodology was applied in the collection or management of the data.

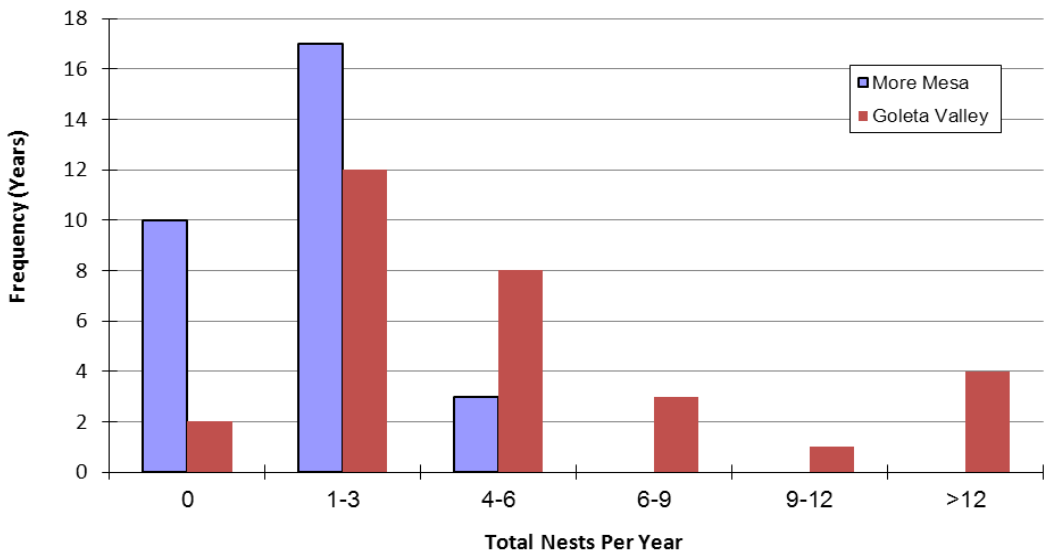
Nesting

Table 3.1-9 summarizes the number and location of nests observed throughout Goleta Valley between 1963 and June 1, 2009. Only confirmed nests or clear breeding evidence (persistent territoriality) from confident sources were included in the summary. Conflicting or incomplete accounts were not included. Where more than one brood was produced within a single year, the number of broods was listed for that location as multiple nests (noted as "total no. of nests in the following tables and figures"). The summary table includes only those years when nesting activity was positively or negatively confirmed for at least one location. Years and locations with the confirmed absence of breeding are highlighted in red in Table 3.1-9. Most locations were divided into consistent or

historic territories. Note, some of these overlap and change with time; however, for simplicity, the general territories were used for ease of reporting.

Of the 47 years reviewed, there were 28 years when one or more kite nest(s) was confirmed in Goleta Valley. Only two years, 1991 and 1992, were confirmed to have no nesting pairs in the entire valley. There were 18 years where no data or inconclusive evidence was gathered (not shown in Table 3.1-9). Nesting at More Mesa occurred 21 out of the 28 years when breeding was recorded in Goleta Valley. Figure 3.1-10 illustrates the number of years with high and low numbers of nests within Goleta Valley, inclusive of nesting at More Mesa. As indicated below, More Mesa typically has 1-3 nests per year, with 10 years when no nests were recorded (note that the data is anecdotal, and nesting may have occurred but was not recorded). Within Goleta Valley, typically at least 1-6 nests were recorded, with more than 12 nests in the valley observed during four of the years of recorded observations.

Figure 3.1-10 Frequency Histogram for Nests in Goleta Valley



A total of 158 nests were confirmed for more than 30 locations within Goleta Valley. Forty-seven of these nests were located on More Mesa. Figure 3.1-11 graphically compares the total number of nests recorded at More Mesa versus other locations throughout Goleta Valley. Over the past half century More Mesa has comprised between 25-30% of the nesting capacity of Goleta Valley.

A comparison of a three-year running average for the total number of nests recorded throughout Goleta Valley and those recorded only on More Mesa (Figure 3.1-12) reveals the consistency of nesting activity at More Mesa. Only the period between 1989 and 1995 when kite were absent throughout much of their range, did More Mesa show a significant decline in breeding. What is most significant from reviewing these numbers is the increase in nesting activity throughout Goleta Valley. As shown in Figures 3.1-11 and 3.1-12, there has been an increase in the number of nest observations over the past two decades. Again, it is important to note the difficulties in determining if this increase is actual or the result of an increase in effort on the part of observers. Survey efforts tend to be focused in areas where successful sightings have occurred in the past and where access is feasible. Historically, observers may not have had access or knowledge of nests within those areas more recently noted. As local populations fluctuate and track available food sources, it follows that observers would gain new information of use areas over time. Further, the level of effort expended for nesting and roosting surveys each year is unknown, but has likely varied considerably over time. Variations in effort, continual discovery of use locations, and increased efforts by surveying biologists to share observational data (blogging) may have contributed to an increase in nest detections.

Figure 3.1-11 Comparison of Total No. of Nests for More Mesa and 23 Other Locations in Goleta Valley

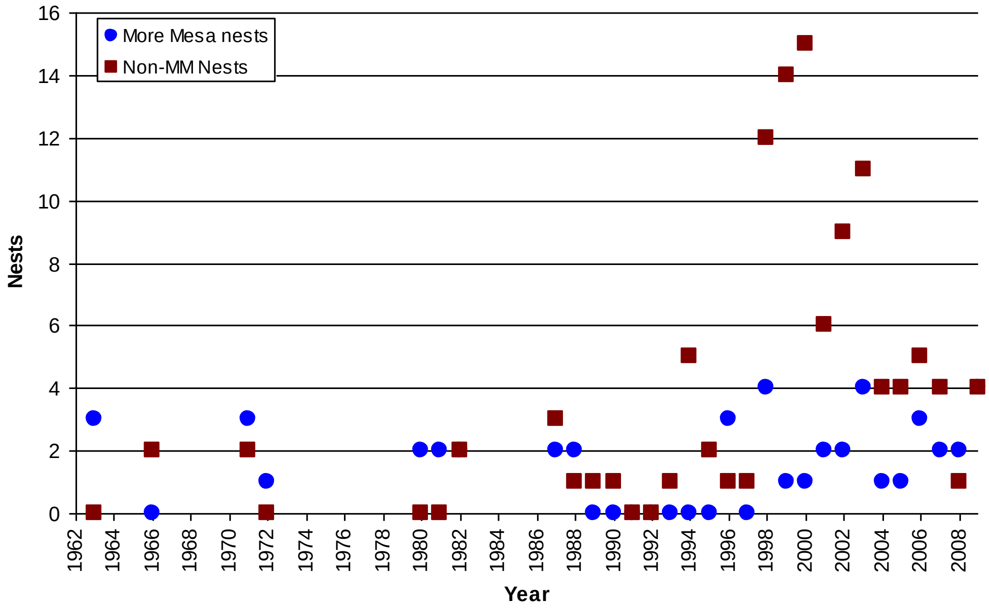


Figure 3.1-12 Comparison of 3 YR Running Average for Nests More Mesa and 23 Other Locations in Goleta Valley

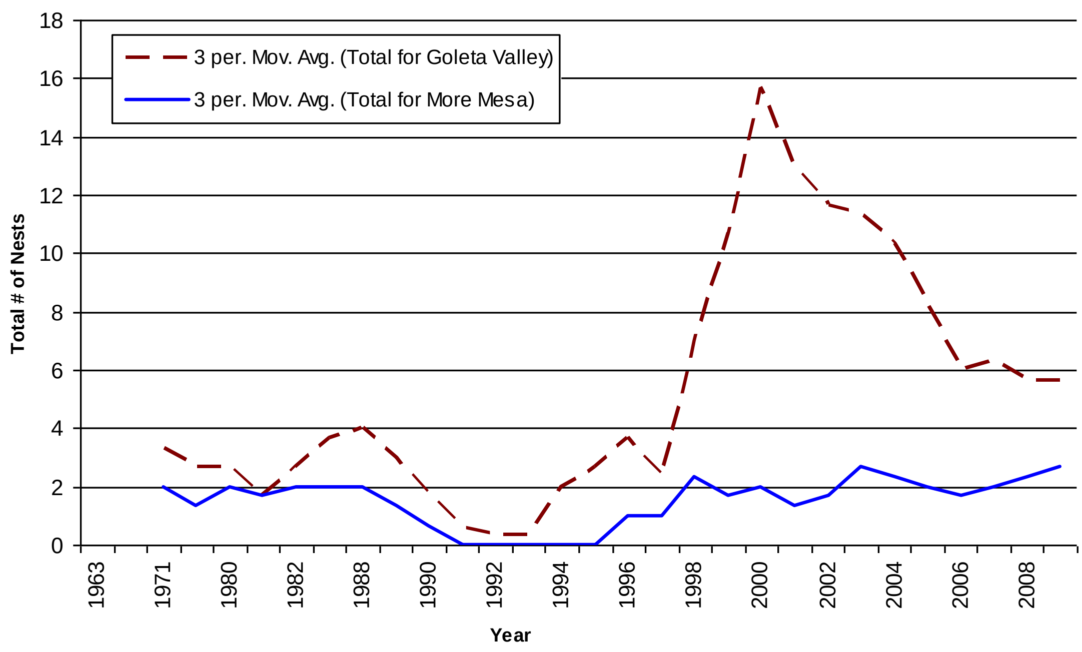


Table 3.1-9 Historic Nest Activity of Kites in Goleta Valley

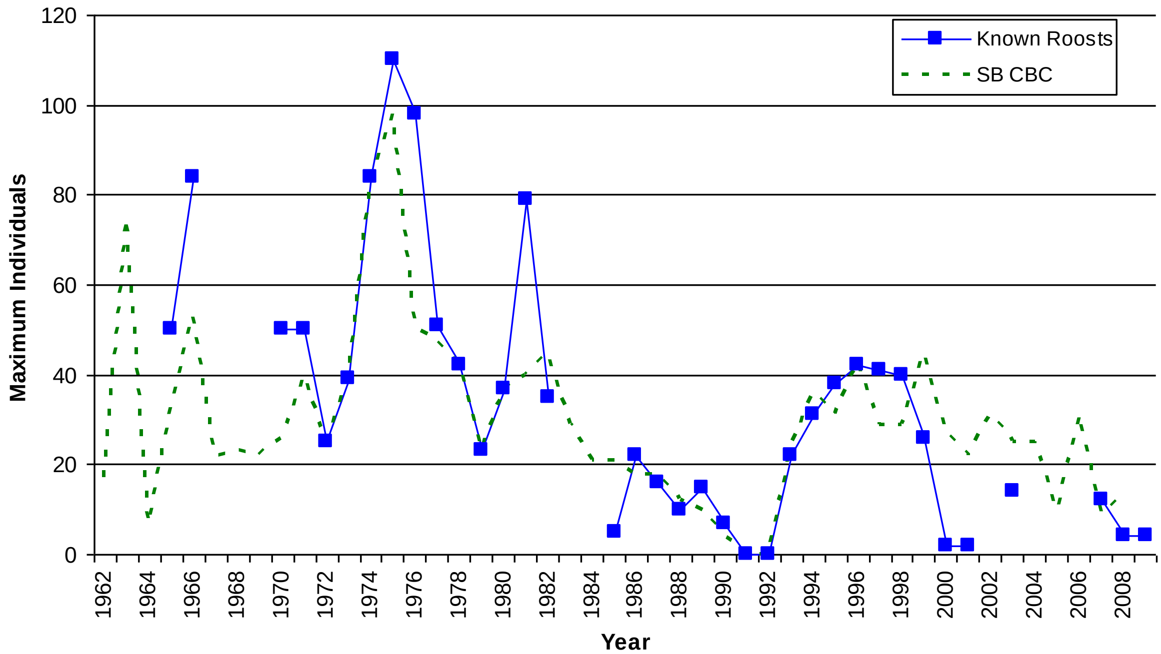
Location	1963	1966	1971	1972	1980	1981	1982	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Coal Oil Point Reserve (COPR)		1	1				1			1						1				1	2	1	1							
Dos Pueblos HS/ Bishop Ranch (DP)		1												1					2		1	1			1	1				
Ellwood Mesa, Central (EMC)								1												1	1									
Ellwood Mesa, E (EME)									1						1					1	1			1						
Ellwood Mesa, W (EMW)															1		1			1				1						1
E Storke Campus Wetland, Harder Stadium (ESCW)																				1	1	1		1				1	1	
Farren Rd (Farren)															1															
Goleta Slough, E (GS)							1	1											1	1			1					1		
Los Carneros Wetland (LCW)											1																			
Lake Los Carneros Park (LLC)								1												1	1		1	1	1	1	3	1		1
More Mesa, Central (MMC)	1		3	1				1											1			1	1	1		1				1
More Mesa, Oak Hollow (MME)	1				1	1	1		1								2		1					1			2	1	1	2
More Mesa, far E (MMfarE)																			1	1										
More Mesa, W (MMW)	1				1	1	1	1	1								1		1		1	1	1	2	1		1	1	1	1
UCSB's North Parcel (NP)																					1	1	1	1	1					
Ocean Meadows Golf Course (OMGC)																			1					1						
Isla Vista, Camino Corto/Del Sol (IV)																								1						
South Parcel (SP)															1	1				1			2							
Winchester Canyon N of Hwy 101 (WIN)																			2		1	1	1	1	1		1	1		1
Maria Ygnacio Creek, E fork, Via Clarice (MYE)															1				1	1										
San Marcos Foothills @ Cieneguitas Ck (SMFE)																		1	1	1	1	1								
San Marcos Foothills W side (SMFW)																			1	1										
San Antonio Creek, N of Tucker's Grove (SA)																			2	1	1					1				1
San Jose Creek, S of Cathedral Oaks (SJS)																				1	1			1						
San Jose Creek, N of Cathedral Oaks (SJN)			1																	1	1									
Various Areas																			1		1		1	2		1	1			
*Dos Pueblos Golf Links (DPG)																					1		1							
Total Nests (or Broods) / Year	**3**	**2**	**5**	**1**	**2**	**2**	**4**	**5**	**3**	**1**	**1**	**0**	**0**	**1**	**5**	**2**	**4**	**1**	**16**	**15**	**16**	**8**	**11**	**15**	**5**	**5**	**8**	**6**	**3**	**8**

The confirmed absence of kite breeding activity is shown in red -
Source: Holmgren, 2009

Roosting

A summary of roosting activity within Goleta Valley was also provided by Mr. Holmgren and supplemented with data from other published and unpublished resources. Table 3.1-10 details known roost observations and includes SBCBC data for all years between 1963 and 2009. The summary table provides the maximum number of individuals observed roosting together per use area for each year. Figure 3.1-13 graphically displays the number of individuals within the largest roost detected each year. Annual Santa Barbara CBC data for kites was provided for comparison as most years lacked roosting data. All roost observations recorded between 1965 and 1982 were at More Mesa. Beginning in 1985 kite began to roost in other locations in Goleta. Between 1986 and 1990 roosting kites shifted to the Los Carneros Wetlands, near the intersection of Hollister and Los Carneros. The maximum number of individuals observed roosting at this location was 22. In 1993 kite roosting shifted again to the Lemon Orchards near Ward Drive. This roost was utilized mainly through 1998, when kites were also seen roosting in ten other use areas, eleven including More Mesa. The last large communal roost (40 individuals) was recorded at More Mesa in 1998. Since 1999 roosts have consisted of small groups of 2-15.

Figure 3.1-13 Comparison of Annual SBCBC Data and the Max Roosting Individuals Observed in Goleta Valley



Although More Mesa is the most consistently used roost within Goleta Valley, it has not been utilized as a communal roost with more than 5-10 individuals since 1998. As shown in Figure 3.1-14 and Table 3.1-10, communal roosting in Goleta Valley has declined. Figure 3.1-14 illustrates that both wintering numbers of kite and roost size are in decline in Goleta Valley. Kites appear to be roosting in smaller numbers and in more locations throughout the valley, rather than coming together into larger communal roosts.

Figure 3.1-14 Comparison of Annual SBCBC Data and the Max Roosting Individuals Observed in Goleta Valley

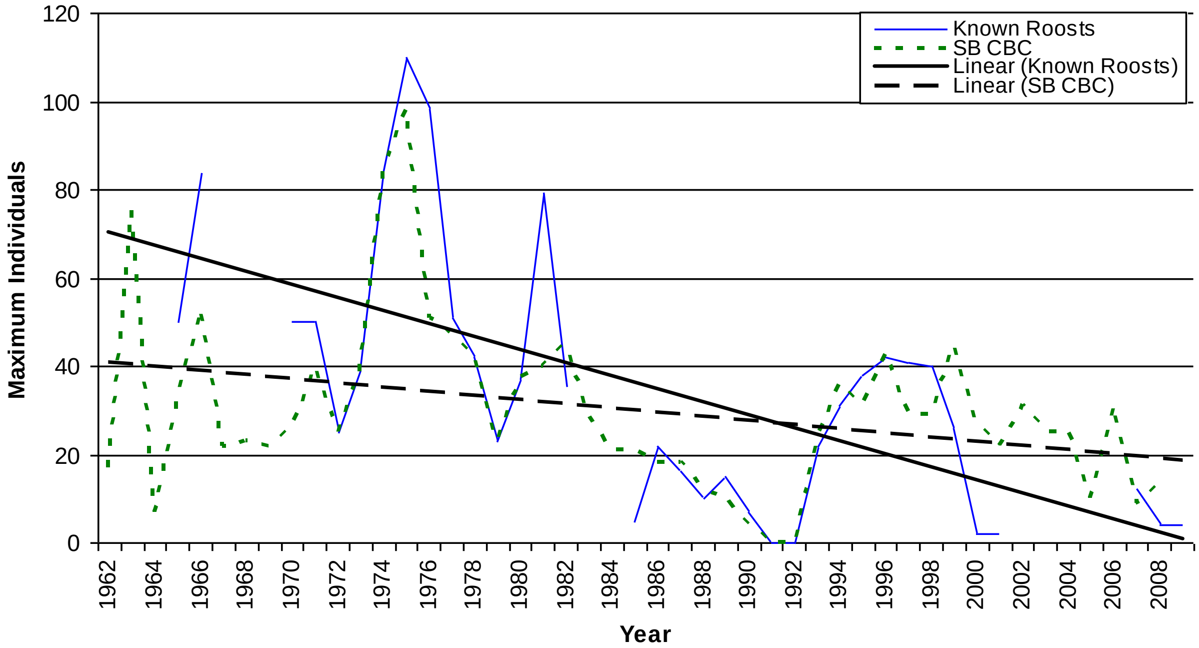


Figure 3.1-15 illustrates the changes in WKTI nesting, roosting and CBC census data over the past half-century. Converse to earlier studies, the current data illustrates an increase in nesting pairs throughout the Goleta Valley, concurrent with a decrease in wintering and roosting numbers. This data indicates that alternate foraging habitat is available within Goleta Valley to support kite breeding activities. However, the decrease in the total number of wintering birds and size of wintering roosts may indicate a lack of adequate winter foraging habitat to support large communal roosts. As discussed by previous studies, kite population fluctuations and movement patterns are not clearly understood. It is understood that they do fluctuate drastically, but that over the years More Mesa's breeding population has remained relatively constant. As foraging habitat at More Mesa has remained relatively stable over time, a return of communal roosting at More Mesa cannot be ruled out, but is not considered probable given the declining trend of wintering kite indicated above.

Figure 3.1-15 A Comparison of Annual SBCBC Data for Santa Barbara and Historic Data of Maximum Roost Size and Total No. of Nests in Goleta Valley

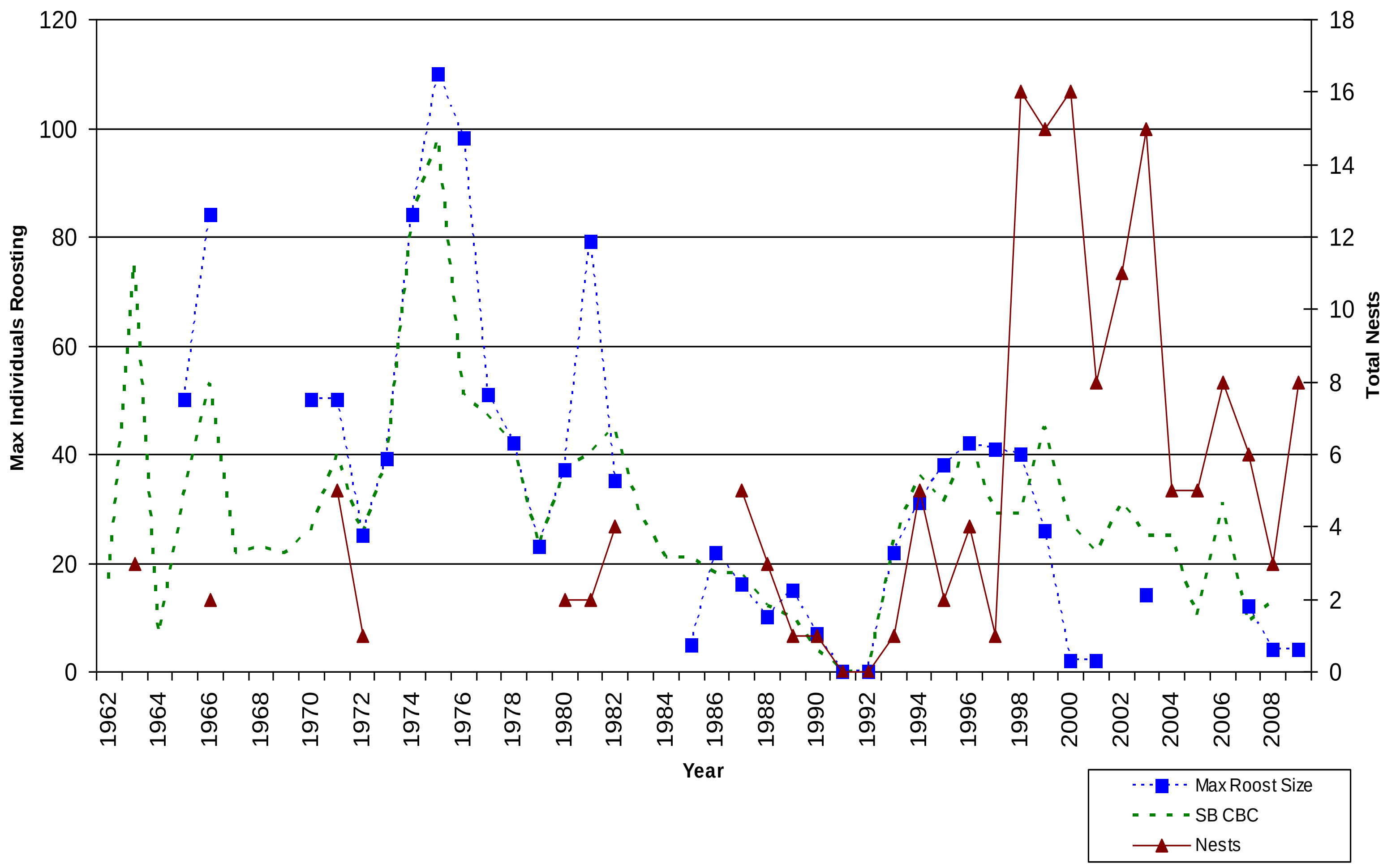


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Table 3.1-10 Historic Roost Activity of Kites in Goleta Valley

Location	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
COPR																																					6											
DP																																					4	26										
EM																																																
EME																																				2	6											
EMW																																																
GS																																					3					14				12	4	
LaP																																				12	16											
LCW																									22	16	10	15	7																			
LLC																										2											4											
LO																								5								22	25	38	42	41	5					4						
MM				50	84				50	50	25	39	84	110	98	51	42	23	37	79	35			5		10	2		2			2				16	35					5						
MMC																													2								40					3						
MME																																				10	40					5						
MMW																																	31															
NP																																					3			2								
OMGC																																					5											
SP																																					7											
SMFE																																					2	8	2									
HS																																																4
Max # Birds			**0**	**50**	**84**	**0**	**0**	**0**	**50**	**50**	**25**	**39**	**84**	**110**	**98**	**51**	**42**	**23**	**37**	**79**	**35**	**0**	**0**	**5**	**22**	**16**	**10**	**15**	**7**	**0**	**0**	**22**	**31**	**38**	**42**	**41**	**40**	**26**	**2**	**2**	**0**	**14**	**0**	**0**	**0**	**12**	**4**	**4**
SB CBC	**17**	**75**	**7**	**33**	**53**	**22**	**23**	**22**	**26**	**40**	**25**	**39**	**84**	**98**	**51**	**47**	**42**	**23**	**37**	**40**	**45**	**29**	**21**	**21**	**18**	**18**	**12**	**10**	**4**	**0**	**0**	**24**	**36**	**31**	**43**	**29**	**29**	**45**	**27**	**22**	**31**	**25**	**25**	**10**	**31**	**9**	**13**	

LaPatera Ranch (LaP); Lemon Orchard SE of Hollister/Ward (LO); UCSB's North Parcel (NP); Hollister School (HS)

The confirmed absence of kite roosting activity is shown in red -

Source: Holmgren, 2009;

3.1.6 DISCUSSION

Pairs nesting in the west side of the study area have historically been less successful than those nesting on the east side (UCSB, 1982, Holmgren and Storrer pers. com.). The proximity of these nests to more heavily used trails with greater intensity activities may contribute to this lowered success rate, as pairs may suffer from an overall increased level of disturbance throughout the critical incubating and nestling states.

3.2 MAMMALS

3.2.1 INTRODUCTION

The small mammal species of More Mesa function as an important prey base for other wildlife, specifically raptors. Their abundance and distribution can be a limiting factor in the distribution, number, and species of predators present at the site. Seasonal prey abundance within More Mesa may provide an insight into assessing the site's ecological function for raptorial species during breeding, general foraging, and wintering periods. In addition to small mammal and rodent species, grassland, riparian, and wetland habitats on More Mesa are suitable for bats and small carnivores. Large herbivores, namely deer, are not known to occur on the mesa.

The objective of the field study was to inventory those mammal species utilizing the site, to determine the presence/absence of special-status mammal species, and to estimate the general abundance and habitat affiliations of small mammals (rodents) utilizing More Mesa because of the importance of this prey source to white-tailed kite (kite) presence and abundance. To accomplish this objective mammal data were collected through focused studies (small mammal trapping and acoustical bat detection surveys), incidental observations and collections over the study period (e.g. pitfall trapping utilized to inventory reptile and amphibian species within More Mesa), and direct observation of scat, tracks, and burrows. Results of these studies were incorporated into the analysis to aid in determining the extent and nature of Environmentally Sensitive Habitat at the site. It was the intention of this study to employ the latest methods and technology to examine mammal diversity and small mammal abundance at the site, and to collect data in such a way as to allow comparison with the results of the 1982 study and, thus, determine differences or trends over time.

Special-Status Mammal Species

A target list of special-status mammal species that could potentially occur on-site was developed by consulting various species occurrence records. This search included a query of the California Natural Diversity Database (CNDDB; California Department of Fish and Game, 2008) for records within the U.S.G.S. 7.5' quadrangles including and immediately adjacent to the site (Dos Pueblos Canyon, Goleta, Santa Barbara, San Marcos Pass, Lake Cachuma, and Little Pine Mountain.); the U.S. Fish and Wildlife Service's list of federally threatened and endangered species that may occur in Santa Barbara County was also reviewed (http://www.fws.gov/ventura/speciesinfo/spplists/sl_santabarbara_co.cfm); a review of published and unpublished literature (UCSB 1982; Woodard-Clyde, 1994; LSA Associates, Inc. 1996; Stendell, 1967; Storrer and Semonsen 1992; Pierson, 2002; Padre, 2005; URS 2008a, b, c); and consultation with the curators for Cheadle Center for Biodiversity and Ecological Restoration [formerly Museum of Systematics and Ecology and Santa Barbara Natural History Museum, Museum of Vertebrate Zoology. Only special-status bat species were identified to potentially occur within the project vicinity (Table 3.2-1).

Table 3.2-1 Special-Status Mammal Species with the Potential to Occur at More Mesa

Species	Status (Federal/State)	Habitat	Nearest Known Records
Western mastiff (*Eumops perotis californicus*)	--/Special Concern	Open, semi-arid to arid habitats, including conifer and deciduous woodlands, coastal scrub, annual and perennial grasslands, palm oases, chaparral, desert scrub, and urban. Crevices in cliff faces, high buildings, trees, and tunnels are required for roosting.	CNDDB record for White Rock Recreation Area. Upper Santa Ynez Valley, north of Paradise Canyon. Bat(s) repeatedly detected acoustically at dusk on June 13 1998.
Big free tailed bat (*Nyctinomops macrotis*)	--/Special Concern	Prefer rugged, rocky terrain. Roosts in buildings, caves, and occasionally in holes in trees. Also roosts in crevices in high cliffs or rock outcrops.	CNDDB record for male specimen collected in 1996 by D. Constantine and Santa Barbara County Health Laboratory at "Santa Barbara." Exact location unknown.
Western red bat (*Lasiurus blossevillii*)	--/Special Concern	Roosting habitat includes forests and woodlands from sea level up through mixed conifer forests. Feeds over a wide variety of habitats including grasslands, shrublands, open woodlands and forests, and croplands. Roost sites often are in edge habitats adjacent to streams, fields, or urban areas.	Observed at Vandenberg Air Force Base in 1998
Townsend's big-eared bat (*Corynorhinus townsendii*)	--/Special Concern	Townsend's big-eared bat is found throughout California, but the details of its distribution are not well known. This species is found in all but subalpine and alpine habitats, and may be found at any season throughout its range.	Observed at Vandenberg Air Force Base in 1998
Pallid bat (*Antrozous pallidus*)	--/Special Concern	Found in low elevations throughout California except for the high Sierra Nevada from Shasta to Kern Cos., and the northwestern corner of the state. Occupies a wide variety of habitats: grasslands, shrublands, woodlands, and forests from sea level up through mixed conifer forests.	Observed at Vandenberg Air Force Base in 1998
Yuma bat (*Myotis yumanensis*)	--/Special Animal	Widespread in California, except the Mojave and Colorado Desert regions. Found in a wide variety of habitats ranging from sea level to 3300 m (11,000 ft), but it is uncommon to rare above 2560 m (8000 ft). Optimal habitats are open forests and woodlands with sources of water over which to feed.	Numerous observations recorded at Vandenberg Air Force Base in 1998

Table 3.2-1 Special-Status Mammal Species with the Potential to Occur at More Mesa

Species	Status (Federal/State)	Habitat	Nearest Known Records
Hoary bat (*Lasiurus cinereus*)	--/Special Animal	The most widespread North American bat. May be found at any location in California. Winters along the coast and in southern California, breeding inland and north of the winter range. Habitats suitable for bearing young include all woodlands and forests with medium to large-size trees and dense foliage. Hoary bats have been recorded from sea level to 4125 m (13,200 ft).	Observed at Vandenberg Air Force Base in 1998, records in Ventura near Wheeler Springs dating back to 1905
Silver haired bat (*Lasionycteris noctivagans*)	--/Special Animal	Occurs in southern California from Ventura and San Bernardino Cos. south to Mexico. Also recorded in Sacramento, Stanislaus, Monterey and Yolo Cos. During spring and fall migrations may be found anywhere in California. Common, but erratic in abundance. Summer habitats include coastal and montane coniferous forests, valley foothill woodlands, pinyon-juniper woodlands, and valley foothill and montane riparian habitats. Summer range is generally below 2750 m (9000 ft).	Observed at Vandenberg Air Force Base in 1998 and on Santa Cruz Island in 1974

Common Mammal Species

Although the bats listed above were the only special-status mammals identified as having the potential to occur onsite, other common mammals anticipated or previously recorded to utilize the site on a regular basis are listed in Table 3.2-2.

Table 3.2-2 Mammal Species Likely to Occur at More Mesa

Order Marsupiala: Marsupials	
- Opossum (*Didelphis marsupialis*)	
Order Insectivora: Insectivores	
- Ornate shrew (*Sorex ornatus*)	
- Broad-handed mole (*Scapanus latimanus*)	
Order Chiroptera: Bats	
- California myotis (*Myotis californicus*)	- Western pipistrelle (*Pipistrellus hesperus*)
- Big brown bat (*Eptesicus fuscus*)	- Mexican free-tail (*Tadarida brasiliensis*)
Order Lagomorpha: Rabbits	
- Brush rabbit (*Sylvilagus bachmani*)	
Order Rodentia: Rodents	
- California ground squirrel (*Spermophilus beecheyi*)	- California vole (*Microtus californicus*)

Table 3.2-2 Mammal Species Likely to Occur at More Mesa

- Botta pocket gopher (*Thomomys bottae*)	- House mouse (*Mus musculus*)
- Western-harvest mouse (*Reithrodontomys megalotis*)	- California Pocket Mouse (*Perognathus californicus*)
- Big-eared woodrat (*Neotoma macrotis*)[1]	Black rat (*Rattus rattus*)
Order Carnivora: Carnivores	
- Gray fox (*Urocyon cinereoargenteus*)	- Striped skunk (*Mephitis mephitis*)
- Red Fox (*Vulpes vulpes*)	- Raccoon (*Procyon lotor*)
- Domestic dog (*Canis domesticus*)	- House cat (*Felis cattus*)
- Coyote (*Canis latrans*)	- Long-tailed weasel (*Mustela frenata*)
- Bobcat (*Lynx rufus*)	

[1] Previously reported as dusky-footed woodrat (Neotoma fuscipes); this species was split in 2004 into the dusky-footed woodrat generally located in northern California and further north and the big-eared woodrat in southern California.

In addition to the mammals listed above, an American black bear (*Ursus americanus*) was observed in the local region during 2008. This bear probably wandered into the area from habitat in the Los Padres National Forest as a result of the 2007 Zaca Fire. It had been reported to historically occur on the mesa (per Dames and Moore, 1972, in UCSB 1982). While this species is not a resident or typical migrant in the area, it does illustrate the continued connectivity of this area with the greater ecosystem of the South Coast. Black-tailed jackrabbit (*Lepus californicus*) was formerly reported in 1991 at nearby Ellwood Mesa and on More Mesa per Dames and Moore, 1972 (in UCSB 1982). Black-tailed jackrabbit in Santa Barbara County could be considered *Lepus californicus bennettii*, a California Department of Fish and Game (CDFG) California Species of Special Concern (SSC). This species is readily observed when present, but was not observed in 1982 nor during this present study and has not been reported in this area for several decades. Marine mammals such as California sea lion (*Zalophus californianus*) and harbor seal (*Phoca vitulina*) are known to come ashore in this area, with the More Mesa beach identified as a harbor seal haul-out based on a survey conducted in May 2001 (NMFS, 2007; 39 individuals seen). California sea lions were noted in small numbers (1-2 individuals) on the beach during the course of the avian studies conducted in 2008 - 2009. Because the focus of the BRS was on the terrestrial resources associated with the mesa and not the beach or offshore area, no further investigation of marine mammal use of the beach area was performed.

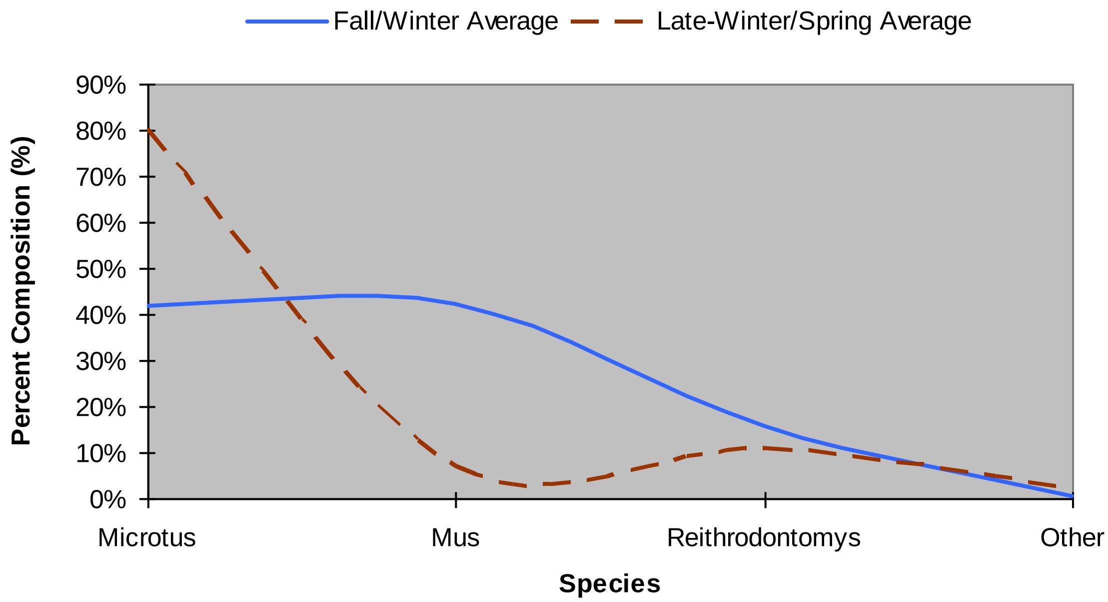
Small Mammals Important to White-tailed Kite

Three species, *Microtus californicus* (California vole), *Mus musculus* (house mouse), and *Reithrodontomys megalotis* (western harvest mouse), are the primary food source for kites in this region. [Please note: hereafter *Microtus californicus* will be referred to as '*Microtus,' Mus musculus* as '*Mus*,' and *Reithrodontomys megalotis* as '*R. megalotis*' for the purposes of this report]. In the 1967 study, *Food and feeding behavior of the White-tailed kite near Santa Barbara, California*, Carl Stendell examined 554 kite pellets and found that their prey was composed almost entirely of these three species. Stendell found no bird, reptile, amphibian, or insect remains that could be positively identified. Further, the study concluded that *Microtus* comprised roughly 47% of kite prey, while *Mus* and *R. megalotis* comprised the other 35% and 18%, respectively.

These data were expanded upon in a second study conducted in 1973 by Waian, *The behavioral ecology of the North American white-tailed kite (Elanus leucurus majusculus) of the Santa Barbara coastal plain*. Waian also conducted a pellet analysis and compared this with Stendell's results. The 1973 study reinforced that kite in the Santa Barbara region prey almost solely on the three species listed above. A comparison of the composition of pellets made between the late winter and early spring of 1971 and 1972 to those made during the fall and early winter of 1965 and 1966 found the difference between the relative numbers of *Microtus* in the two groups to be statistically significant. Since *Microtus* are larger and diurnal, they provide more food per hunting effort. Thus, although *Microtus* are considered the favored prey of kites, they will opportunistically prey primarily upon the two other species when *Microtus* numbers decline or when alternate prey are more abundant and relatively easy to capture.

Figure 3.2-1 compares the percentages of these three species found in the pellets collected in the fall and early winter of 1965 with those found in pellets collected in the late winter and early spring of 1971 and 1972. Based on Waian's and Stendell's pellet analyses the winter/spring (January – April) diet of kite is comprised of 79% *Microtus*, 7% *Mus*, and 12% *R. megalotis*. This changed to 41% *Microtus*, 42% *Mus*, and 16% *R. megalotis* in the fall (October – December). Careful consideration was given to studying these three particular species as part of the mammal study of the site because of their importance to the kite.

Figure 3.2-1 Seasonal Comparison of White-tailed Kite Pellets



* Source: Waian, 1973.

The following summarizes elements of the basic life history for these three species important to the survival of the kite at More Mesa. This information is summarized from the life histories provided by the CDFG California Wildlife Habitat Relationship System (Zeiner, 1990).

***Microtus californicus*, California Vole**, feed mainly on leafy parts of grasses, sedges, and herbs, seeking cover in dense grass, beneath plant residues, in brush piles, beneath logs, and in underground burrows. They prefer meadows and grasslands with friable soils, where their foraging and movement behavior often form a network of above ground runways in grass leading from burrows constructed in soft soils. Voles are active year-round and are generally diurnal. Their mean home range varies from a radius of 16 feet (ft) - up to 49 ft or more (Pearson 1960 in Zeiner, 1990). Breeding is throughout the year, reaching peaks whenever food and cover are abundant. Gestation is 21 days, litter size averages 4 young (ranging between 1-9), and between two to 5 litters of up to 8-20 young may be produced each year. Weaning occurs at around 21 days. Females reach sexual maturity at 29 days on average. Length for this species ranges between roughly 6 inches (in) – 8 in and weight averages between 1-2.5 ounces (ozs) (Jameson and Peeters, 2004).

***Reithrodontomys megalotis*, Western Harvest Mouse**, is omnivorous, eating seeds, insects, fruits, and shoots from the ground surface and in bushes. The species prefers thick grass or shrub cover for foraging and nesting, and is typically ubiquitous, but most abundant in grasslands, shrublands, and early seral stages of forest habitats, usually near water. Harvest mice are nocturnal and crepuscular, staying active year-round, and are most active on moonless and rainy nights. The species' home range is variable, but was shown to average 1.0 to 1.38 acres (ac) in California coastal scrub (Brant 1962, Meserve 1977 in Zeiner, 1990). Harvest mice breed year-round, peaking in April, mid-summer, and October (Smith 1936, Fisler 1965, 1971 in Zeiner, 1990). Litter size averages 2-4 young (ranging between 1-9) with up to 14 litters per year (28-56 young per year). Females become sexually mature at 4 months and are polyestrous. Length for this species ranges between roughly 4.5 in – 6 in, and weight between 0.3 ozs and 0.5 ozs (Jameson and Peeters, 2004).

***Mus musculus*, House Mouse**, usually forage beneath or near cover, on a wide variety of foods, including grains, fruits, seeds, vegetables, fleshy roots, meat, arthropods, glue, paste, soap, and other household articles. This species may eat about 10% of body weight daily, feeding 15-20 times a day. House mice rarely occur far from cover (buildings, rubbish piles, slash, vegetation) and are found near human habitation and surrounding riparian habitats. Optimal habitat includes refuse piles, debris or vegetation for cover, and accessible free water. House mice are predominately nocturnal and active year-round. Their home range varies from 1500 ft² in an area of high meadow vole density (Lidicker 1966 in Zeiner, 1990) to 3925 ft² in an area of low meadow vole density (Quadangno 1968 in Zeiner, 1990). Throughout California their home range is known to vary from 1496 ft^2 to 12,100 ft² (DeLong 1967 in Zeiner, 1990). House mice breed year-round, with peaks in early spring and late summer. Litter size averages 4-5 young (ranging between 3-12); with 5-8 litters per year (20-32 young per year). Weaning occurs at 3 weeks and females reach sexual maturity at 8 weeks. The average length for the species is between roughly 6 in – 8 in. The average weight is between 0.4 ozs and 0.8 ozs (Jameson and Peeters, 2004).

3.2.2 METHODOLOGY

Small Mammal Trapping

Rincon conducted three small mammal trapping sessions: April 30 – May 5, 2008; November 17 – 20, 2008; and March 10 – 13, 2009. Trapping sessions were timed to occur during small mammal population peaks and during the breeding and roosting periods of the kite. The exact timing of each survey was based on in-field and climatic conditions during the survey year, such that the first trapping session coincided with the mid-point of the breeding season of kite. The second session coincided with the kite roosting period (typically late November – December). The third session coincided with the 2009 core kite breeding season (typically March – April). The first survey was conducted over a six day period, trapping the east half of the site over three sequential nights and the west half over the following three sequential nights. The entire mesa was trapped over three sequential nights in both the May 2008 and March 2009 trapping sessions.

Transects were configured in parallel line and single line transects. Parallel lines were spaced approximately 50 ft apart and individual traps on all lines were spaced at approximately 50 ft intervals. Fifteen traps were placed on each line, providing a total of 30 traps on each parallel line transect and 15 traps on each single line transect. Trapping was conducted using long and short Sherman live-traps and supplemented with four medium sized wire-mesh Havaharts. The Havaharts were utilized only within the riparian areas in an effort to sample larger-sized mammals. Each trap was mapped and given a unique identification number. The location was mapped using a Trimble GTX, and local habitat recorded to ensure placement consistency throughout the trapping sessions. Figure 3.2-2 illustrates the location of each parallel line, single line transect, and trap location.

Trapping locations were chosen to match those in the 1982 study, and included those in the original study plus one additional transect placed in grassland habitat, three additional transects placed within riparian habitat, and one additional transect placed within coastal bluff scrub habitat. The location of the additional traplines were chosen to obtain information regarding habitats that were not trapped in the past (riparian edge and bluff [G] habitat) and where it was anticipated that foraging effort by white-tailed kite might be concentrated. Table 3.2-3 illustrates the habitat, transect type, and number of traps used in the current study.

Table 3.2-3 Summary of Small Mammal Traplines Habitat, Transect Type, and Number

2009 Transect ID	2009 Habitat Characterization	2009 Transect Type.	2009 Number of Traps
A	Grassland	Parallel Line	30
B	Grassland	Parallel Line	30
C	Grassland	Parallel Line	30
D	Grassland	Parallel Line	30
E*	Grassland	Parallel Line	30
F	Grassland	Parallel Line	30
G*	Bluff	Parallel Line	30
I	Wetland	Single Line	15
J	Wetland	Single Line	15
K*	Riparian	Single Line	15
L*	Riparian	Single Line	15
M	Riparian	Single Line	15
N*	Riparian	Single Line	15
Total			**300**

** Indicates new transects which were not included in the 1982 study.*

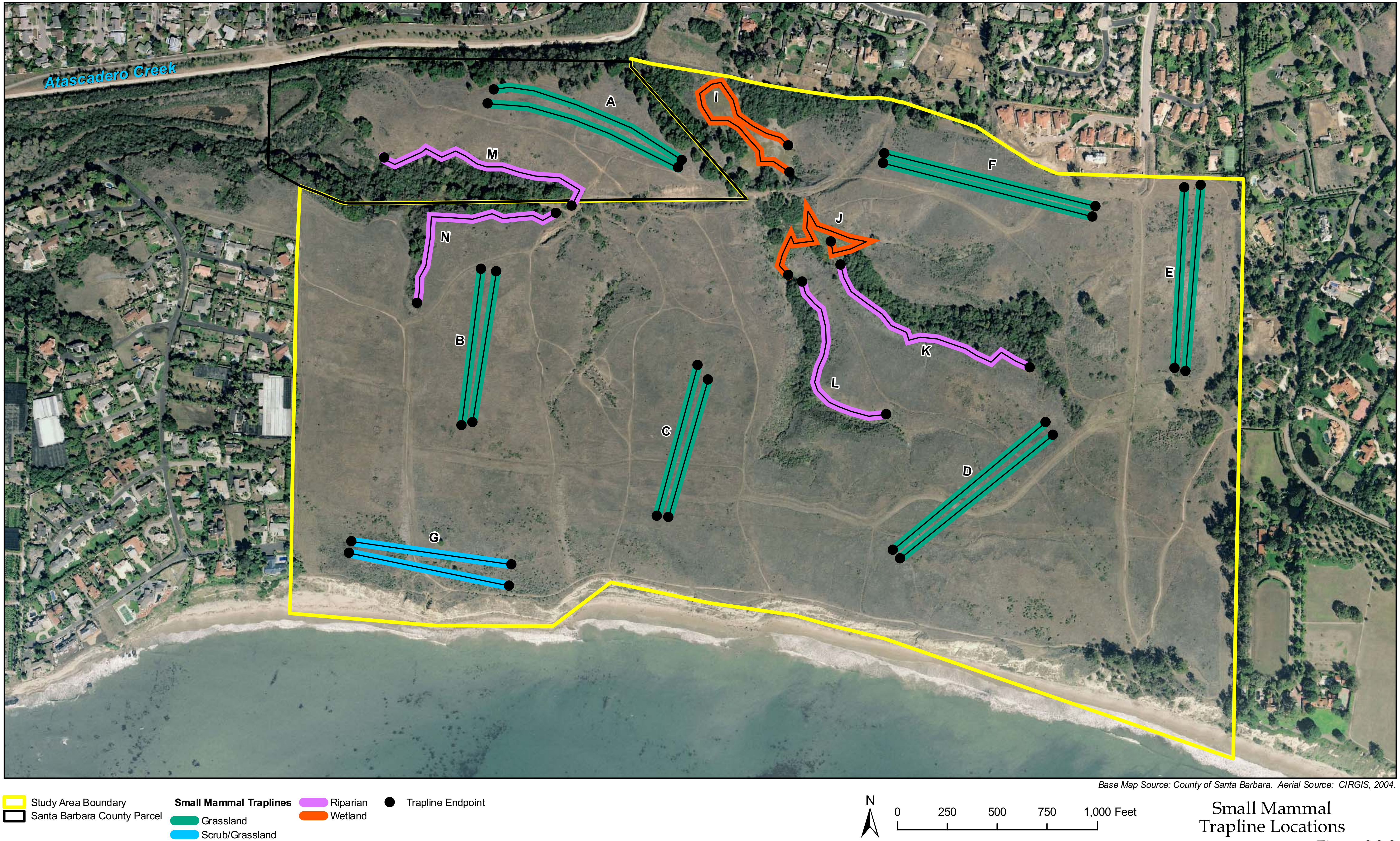
A total of 300, 202 long and 98 short, Sherman live-traps were utilized during each trapping session. Traps were set with a small amount of batting and a small amount of food (rolled oats and bird seed). Efforts were made to avoid unnecessary mortality by placing cover materials (grass or thatch) to shade traps during the day, avoiding areas near ant colonies, and hiding traps from public view to avoid vandalism. Additionally, a late afternoon trap check was added to the survey effort. This differed from the 1982 study which set traps in the early afternoon of day one, checked and reset the next morning, and then checked and closed the following morning, repeating the process five to six days later. This additional effort was added to the current study to 1) prevent direct mortality of animals captured during the day and indirect mortality of young due to the absence of a nursing mother or through the re-absorption of embryos by a food stressed female, and 2) examine abundance for diurnal species of small mammals, such as *Microtus*. Traps available overnight and checked during the morning are referred to as nighttime intervals. Traps available during the day and checked in the late afternoon are referred to as daytime intervals.

Day one of each trapping session the traps were placed and set during the late morning and early afternoon. Traps were then checked and reset (if necessary) in the late afternoon. No animals were captured during a trapping session on day one. On day two (first nighttime trapping interval) and day three (second nighttime trapping interval) the first trap-check and reset effort began at dawn and was completed in an average of five hours. Traps were checked and reset again in the late afternoon (daytime trapping interval), which generally required approximately two hours to complete. On day four (third nighttime trapping interval) traps were checked beginning at dawn and upon survey each trap was closed and collected for removal offsite. Trapping sessions were generally completed by three biologists with occasional assistance of one additional biologist when setting and collecting traps.

To estimate the size of the small mammal population mark and recapture data was collected by capturing individuals from the population, releasing them, and resampling to see what fraction of individuals were marked. Individuals captured were marked by clipping a small area, less than 1 centimeter (cm), of hair from just above the tail. Catalog data gathered for each trapped specimen included: species; location (trap identification number), trap session (date), trap status (open with food, open with no food (escapee), closed with food, closed with no food (escapee), disturbed, or missing), and whether marked from a previous capture day or capture session. Notes of age and reproductive status were made as necessary. In the event identification could not be made in the field, measurements of the individual's body, tail, foot, and ear were collected and a photo of the individual taken for lab identification. During the course of the study 69 traps had to be relocated due to vandalism (removal) of the original trapline flagging between sessions. Additionally five traps were stolen. Relocation included all traps along transect B, 15 traps on transect F, 4 traps on transect E, and 20 traps on transect G.

Data from the small mammal trapping effort were utilized to calculate an abundance index. An abundance index provides a relative measure of the number of animals caught per the number of traps available. The number of available traps is equal to the number of traps set multiplied by the number of sampling intervals, minus any unavailable traps. Traps were considered unavailable if they captured another species, were open but with no food (trap failed to close), were disturbed, or were closed with no food (escapee). Over the course of each three-day trapping session a total of five sampling intervals was conducted for a total of 1,500 trap-checks. This can be divided into the nighttime and daytime trapping intervals. Only the nighttime interval data was used to calculate the abundance index, because too few captures occurred during the daytime to calculate a meaningful daytime abundance score. Therefore, daytime data were examined separately in a tabular format.

The number of nighttime available traps per session was 900. To calculate abundance for each species, the total number of that species captured per trapping session (i.e. 25 *Microtus* in May of 2008) was divided by the total number of overnight traps available. For instance, although 900 traps were set during the May trapping session, 78 were unavailable leaving only 822 available to capture a *Microtus*. The abundance index was calculated by using the number of *Microtus* captured (25) divided by the total number of available overnight traps (822), equaling 0.03. This calculation for each line and each trapping session provides a general measure of abundance per species. Aggregating these numbers then provides a measure of small mammal abundance per area.



Small Mammal
Trapline Locations

Figure 3.2-2

Similar to the 1982 study, data was collected in an effort to compute relative abundance based on mark and recapture data. Relative abundance provides a representation of the number of animals in an ecosystem, while an abundance index provides information on the number of animals per available trap. Overall study capture and recapture rates were considered too low to compute this value, and a substantial increase in the number of additional trap nights would have been required to gather sufficient mark and recapture data to calculate relative abundance. Instead, the above general abundance index was chosen to analyze the relative densities of rodents and foraging value of habitats within the Mesa.

Acoustical Bat Detection Surveys

A total of three bat detection surveys were conducted on April 17 – 19; August 3 – 9; and October 3 – 5 of 2008. Surveys began at 1900 hours (ie: 7:00 PM) and ended at approximately 2400 hrs (midnight). Survey events are referred to by the month during which they were conducted. Bat calls were detected using a Pettersson ultrasound detector D 240x and recorded onto an iRiver iFP-895 MP3 player. Call files were downloaded using iRiver software and converted into wav files using Acoustica software (Acoustica Audion Converter Pro 06/22/07, version 1.0 b24, California). Call files could then be viewed and identified to species using Sonobat software (Sonobat version 2.6). Calls with species-determining characteristics were identified and verified by Joe Szewczak, author of the Sonobat software, for addition to the species list for the study site (Szewczak personal communication April and October 2008).

Each survey event included three consecutive survey nights. Surveys began one half-hour before sunset (generally between 1830 and 1930 hours) and ended at midnight. Each night's survey began with one hour of stationary recording in a pre-determined location where bats were expected to be found. After the initial hour, a walking, meandering transect method was used to survey the site. Transect routes were chosen to maximize both coverage of More Mesa and the adjacent County parcel and to maximize the likelihood of detecting bats. Transects generally covered most of the existing trails on the site. Surveyors walked slowly, stopping to listen for five minutes in any spot where a bat call was detected. At each location where a call was detected, a Geographic Positioning System (GPS) point was taken.

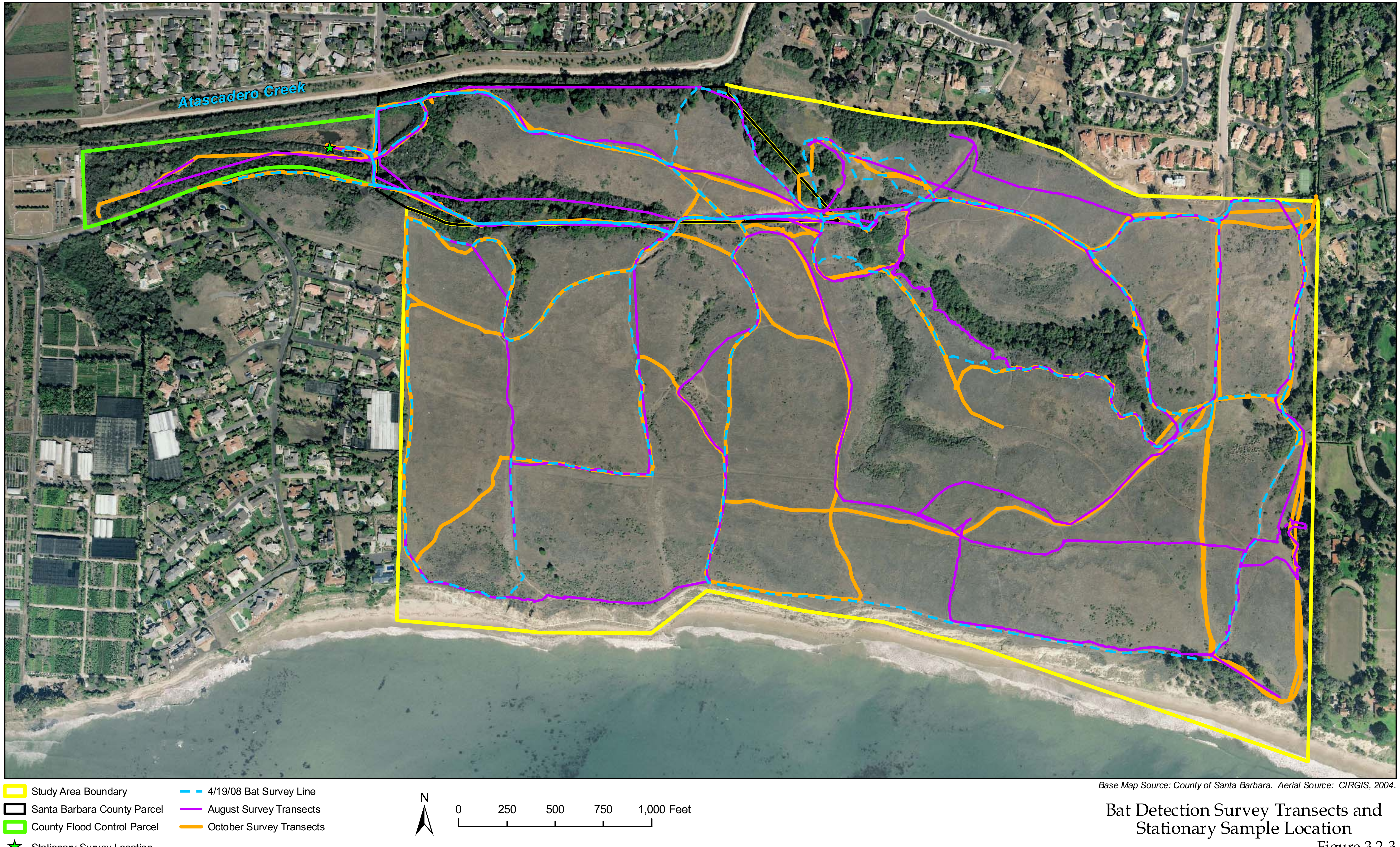
The survey efforts in August and October were modified by extending the three-night survey events from sunset to dawn the next morning in an effort to detect additional species of bats that may be utilizing the site at later periods during the night. This was accomplished by continuing walking transects between one half-hour before sunset until midnight, then positioning the detector and recording device at a stationary location to gather data until dawn. The stationary survey location was a tree in the riparian corridor adjacent to the Santa Barbara County Flood Control (FC) mitigation pond on the FC parcel (Refer to Figure 3.2-3). The stationary survey location was chosen for its proximity to Atascadero Creek and the FC mitigation ponds, as well as its distance and obscurity from nearby pedestrian trails.

Four additional nights of stationary surveys were conducted in August to further maximize detection when diversity and activity onsite were anticipated to be highest. The additional stationary surveys sampled between one half-hour before sunset until dawn and increased the number of consecutive survey nights to seven. The bat detector and recording equipment were hung at the stationary survey location on the FC parcel for four nights (August 3 – 6) prior to the walking transects. On the fifth, sixth and seventh survey nights (August 7 – 9), walking surveys were conducted during the first half of the evening (beginning at 1930 and ending at 2300 hours) followed by the stationary survey until dawn. The final series of bat surveys were conducted on October 3 – 5. Surveys began at 1800 hours and ended at approximately 2200. In October the detector was hung in the tree for two of the three nights (October 4 and 5) after the walking transects. The detector was not left out on October 3 due to overnight rain. Table 3.2-4 lists the number of survey nights per session.

Table 3.2-4 Survey Hours per Session

	Survey Period (hours)	
Date	**Walking**	**Stationary**
April 17	1900-2400	NA*
April 18	1900-2400	NA*
April 19	1900-2400	NA*
August 3	NA*	1930-0600
August 4	NA*	1930-0600
August 5	NA*	1930-0600
August 6	NA*	1930-0600
August 7	1930-2300	NA**
August 8	1930-2300	2300-0600
August 9	1930-2300	2300-0600
October 3	1800-2200	NA***
October 4	1800-2200	2200-0700
October 5	1800-2200	2200-0700

** Survey not scheduled.*
*** Data currently not accessible due to technical problem.*
**** Detector not used overnight due to rain.*



Bat Detection Survey Transects and Stationary Sample Location
Figure 3.2-3

3.2.3 RESULTS

The results of the small mammal trapping, acoustical bat detection surveys, and incidental and direct observations of mammals at More Mesa confirmed the presence of 24 terrestrial mammal species. Table 3.2-5 lists those mammal species observed either by direct capture or other sign during the 2008 – 2009 study period. Of these 24 species, only four are considered special-status, including two listed as CDFG species of special concern and two listed as CDFG Special Animals. All of the special-status species are bats, which are also recognized by the Western Bat Working Group (WBWG) as medium to high priority level species for conservation.

Table 3.2-5 Terrestrial Mammal Species Observed at More Mesa

Order and Family	Common name	Scientific name	Federal, State, DFG, or WBWG status [2]
Didelphimorphia			
Didelphidae	Opossum	*Didelphis marsupialis*	
Insectivora			
Soricidae	Ornate shrew	*Sorex ornatus*	
Talpidae	Broad-footed mole	*Scapanus latimanus*	
Chiroptera			
Molossidae	Mexican free-tail	*Tadarida brasiliensis*	
	Western mastiff	*Eumops perotis*	SSC, High
Vespertilionidae	Big brown bat	*Eptesicus fuscus*	
	California myotis	*Myotis californicus*	
	Hoary bat	*Lasiurus cinereus*	SA, Medium
	Red bat	*Lasiurus blossevillii*	SSC, High
	Yuma myotis	*Myotis yumanensis*	SA, Low/Medium
Carnivora			
Procyonidae	Raccoon	*Procyon lotor*	
Mustelidae	Striped skunk	*Mephitis mephitis*	
	Long-tailed weasel	*Mustela frenata*	
Canidae	Coyote	*Canis latrans*	
	Dog	*Canis lupus familiaris*	
Felidae	Cat	*Felis catus*	
Rodentia			
Sciuridae	California ground squirrel	*Spermophilus beecheyi*	
Geomyidae	Botta's pocket gopher	*Thomomys bottae*	
Cricetidae	Western harvest mouse	*Reithrodontomys megalotis*	
	Big-eared woodrat	*Neotoma macrotis*	
	California vole	*Microtus californicus*	
Muridae	Black rat	*Rattus rattus*	
	House mouse	*Mus musculus*	
Lagomorpha			
Leporidae	Brush rabbit	*Sylvilagus bachmani*	

SSC – California Department of Fish and Game (CDFG) Species of Special Concern, SA – CDFG Special Animal, High, Medium or Low – Western Bat Working Group (WBWG) priority level.

R. megalotis, *Microtus*, *Mus, Neotoma macrotis* (big-eared woodrat), and *Rattus rattus* (black rat) were captured during the small mammal trapping effort. For purposes of this report big-eared woodrat, *Neotoma macrotis,* will hereafter be referred to as *Neotoma* and black rat, *Rattus rattus*, referred to as *Rattus*. Small mammals listed in Table 3.2-5 that were captured during reptile and amphibian targeted pitfall trapping efforts included *Mus*, *R. megalotis*, ornate shrew, and Botta's pocket gopher. The remaining mammal species listed in Table 3.2-5 were not directly captured, but were observed during other general field surveys or indirectly detected through observations of scat, tracks, or burrows. It is noted that though originally expected to be present at the site, the extensive trapping effort did not discover any California Pocket Mouse (*Perognathus californicus*) at the site, nor were any of the typically widespread deer mice (*Peromyscus* sp.) discovered. Since these species would have been captured had they been present, they are considered to not be present at the site.

Small Mammal Trapping

The small mammal trapping effort resulted in 693 individual small mammal (rodent) captures. Of the total, 688 were species of interest as prey items for kite or were present in significant numbers to warrant inclusion in this analysis (See Table 3.2-6). Of the species of interest, the majority were *R. megalotis* (67%). The remaining captures were of *Microtus* (16%), *Neotoma* (9%), and *Mus* (7%). Capture results for *Neotoma* are included as the species' capture rates were comparatively high with the three key species of interest; however this species is not included in the abundance index. The remaining small mammals that were captured represent less than 1% of the total captures in the live traps include black rat*,* brush rabbit*,* and California ground squirrel. These animals are excluded from the summary table and further analysis due to their small capture numbers and because they are not considered an important food source for kite in this region.

Table 3.2-6 Small Mammal Trapping Capture Results Summary

	Microtus	*R. megalotis*	*Mus*	*Neotoma*	Total
May 2008	28	33	9	11	81
November 2008	25	156	23	21	225
March 2009	58	276	17	31	382
Total	**111**	**465**	**49**	**63**	**688**

The remainder of the small mammal trapping captures, which constitute unavailable traps for small mammals and are excluded from the summary tables below, include: California towhee (*Pipilo crissalis),* song sparrow (*Melospiza melodia)*, western fence lizard (*Sceloporus occidentalis*), and southern alligator lizard (*Elgaria multicarinata*). These species are not considered important food source for kite in this region and are not included in the following analyses. While not targeted, small mammals were also captured as part of the pitfall trapping effort in relatively small numbers when compared to the number of trap-days (number of days that a pitfall trap was open). Nonetheless, 100 small mammals were captured during the 2,979 pitfall trap-days available. In particular, the pitfall traps were the only place that ornate shrews were caught (total of 10 individuals), and one pocket gopher. The most common mammal found in a pitfall trap was *R. megalotis* (53), followed by *Mus* (28).

As shown in Table 3.2-6 the number of individuals captured increased over the course of the study. There was a 178% increase in total captures between May and November of 2008. The number of captures increased again by 70% between November 2008 and March 2009, for a total increase of 370% from the spring of 2008 to 2009. Many small mammal populations tend to periodically cycle both in response to environmental conditions and as part of density-dependent and predator induced population changes. The observed increase in capture rates for *R. megalotis* and *Microtus* may indicate that the population cycle was on an increasing trend for these mammals. Figure 3.2-4 illustrates the change in capture numbers among the three trapping sessions. The largest increase (370%) is the percent increase of *R. megalotis* between May and November of 2008. During this period, *Microtus* capture numbers declined and *R. megalotis* and *Neotoma* increased by approximately 156% and 91%, respectively. Thus, there was a moderate change in captures of all but *R. megalotis*. This corresponds with the known breeding patterns for these species as *R. megalotis* are known to peak in April, mid-summer and October, while *Microtus* peak when resources are abundant (generally spring), and *Mus* peak in early spring and late summer.

Figure 3.2-4 Total Captures for *Microtus*, *R. megalotis*, and *Mus* per Trapping Session

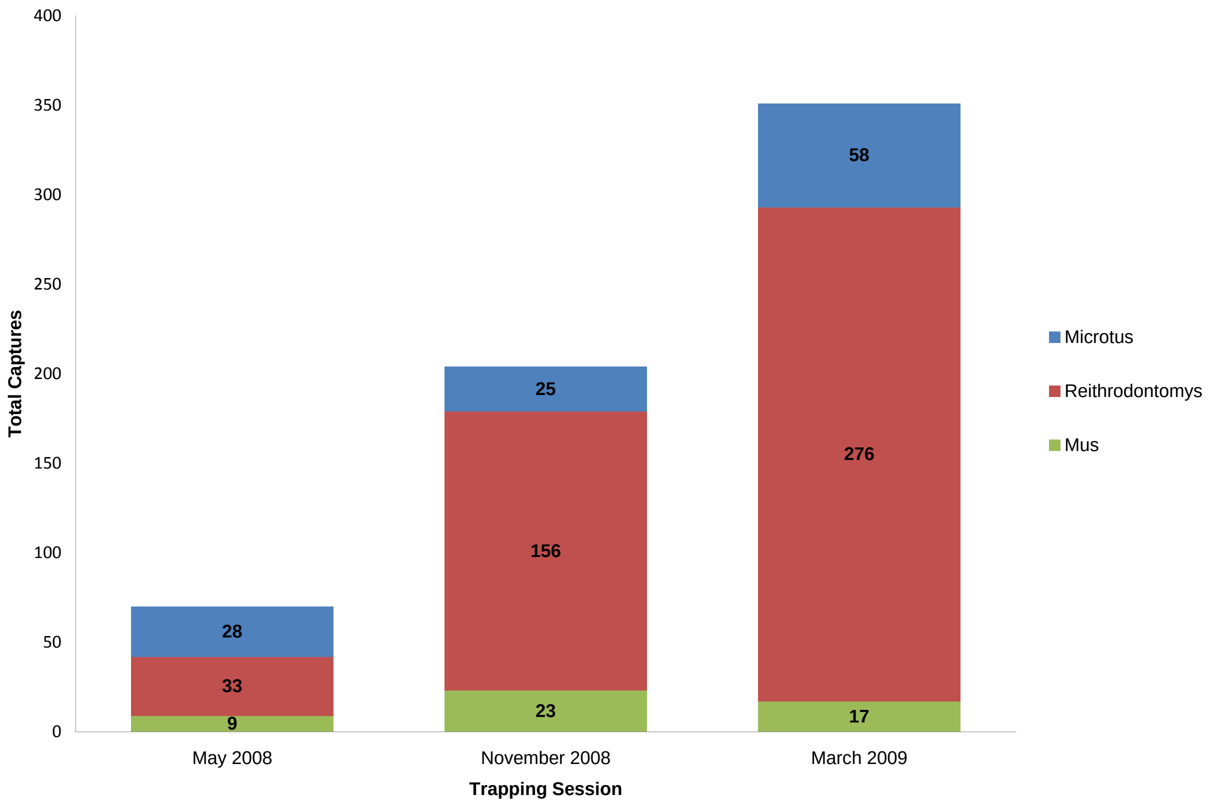


Table 3.2-7, below, provides a breakdown of the number of each species captured per trapping session for both nighttime and daytime trapping intervals.

Table 3.2-7 Daytime and Nighttime Trapping Interval Totals

May 2008								
Species	**Night 1**	**Day 1**	**Night 2**	**Day 2**	**Night 3**	**Total Night**	**Total Day**	**Total Captures**
Microtus	7	0	8	3	10	25	3	**28**
R. megalotis	1	0	14	1	17	32	1	**33**
Mus	3	0	3	0	3	9	0	**9**
Neotoma	3	0	3	0	5	11	0	**11**
Total	**14**	**0**	**28**	**4**	**35**	**77**	**4**	**81**

Table 3.2-7 Daytime and Nighttime Trapping Interval Totals

Species	Night 1	Day 1	Night 2	Day 2	Night 3	Total Night	Total Day	Total Captures
November 2008								
Microtus	3	3	6	5	8	17	8	**25**
R. megalotis	36	1	41	1	77	154	2	**156**
Mus	3	1	10	1	8	21	2	**23**
Neotoma	4	0	10	0	7	21	0	**21**
Total	**46**	**5**	**67**	**7**	**100**	**213**	**12**	**225**
March 2009								
Species	**Night 1**	**Day 1**	**Night 2**	**Day 2**	**Night 3**	**Total Night**	**Total Day**	**Total Captures**
Microtus	17	4	17	7	13	47	11	**58**
R. megalotis	58	6	105	4	103	266	10	**276**
Mus	4	1	6	1	5	15	2	**17**
Neotoma	6	1	10	0	14	30	1	**31**
Total	**85**	**12**	**138**	**12**	**135**	**358**	**24**	**382**

As presented in Table 3.2-7, less than 6% (40) of the total captures were daytime captures. The majority of daytime captures were *Microtus* (55%) and *R. megalotis* (32.5%). *Mus* made up 10% and *Neotoma* only 2.5% of the daytime captures. This is important to note as kite are most active and forage during the daytime. *Microtus* are active at all hours of the day and night and *R. megalotis*, although strongly nocturnal, are also active during the early morning and late afternoon daylight hours. Thus it follows that the activity periods of these two species make them relatively accessible for foraging kites.

Although the tables above have identified the seasonal prey abundance within More Mesa for *Microtus*, *R. megalotis*, and *Mus* during 2008 – 2009, it is important to look at their spatial distribution across the site. Table 3.2-8 demonstrates the number of captures, unavailable traps, and the abundance index for each trapline for each separate trapping session. Note that *Neotoma* are not shown in the following table as the species has not been shown to be a significant prey item in past studies in this area. However, juveniles of larger species such as *Neotoma* have been an important prey item for kites in other locations (Scheibler, 2007; Schlatter, et al. 1980; Leveau & Leveau, 2004). Although not shown in the table, similar to other species caught in small mammal traps, its capture was recorded and is included in the calculations below as rendering a trap “unavailable” for the three species of interest.

Table 3.2-8 Small Mammal Trapping Abundance Index

			R. megalotis			*Microtus*			*Mus*				
Trapline	**Session**	**Traps***	**Unavail. Traps ****	**# Captures. *****	**AI**	**Unavail. Traps ****	**# Captures**	**AI**	**Unavail. traps ****	**# Captures**	**AI**	**AI Small Mammals**	**AI Small Mammals All Sessions**
A	**08-May**	90	10	1	**0.01**	2	9	**0.1**	11	0	**0**	**0.11**	**0.24**
	08-Nov	90	16	18	**0.24**	28	0	**0**	27	1	**0.02**	**0.25**	
	09-Mar	90	16	21	**0.28**	26	10	**0.16**	35	1	**0.02**	**0.38**	
B	**08-May**	90	1	4	**0.04**	3	1	**0.01**	4	0	**0**	**0.06**	**0.11**
	08-Nov	90	10	3	**0.04**	12	0	**0**	10	3	**0.04**	**0.07**	
	09-Mar	90	3	16	**0.18**	14	2	**0.03**	16	0	**0**	**0.20**	
C	**08-May**	90	1	1	**0.01**	2	0	**0**	2	0	**0**	**0.01**	**0.05**
	08-Nov	90	9	2	**0.02**	7	4	**0.05**	9	2	**0.02**	**0.09**	
	09-Mar	90	6	4	**0.05**	10	0	**0**	10	0	**0**	**0.05**	
D	**08-May**	90	1	2	**0.02**	2	1	**0.01**	3	0	**0**	**0.03**	**0.09**
	08-Nov	90	2	5	**0.06**	7	0	**0**	7	0	**0**	**0.06**	
	09-Mar	90	5	11	**0.13**	8	5	**0.06**	13	0	**0**	**0.18**	
E	**08-May**	90	1	2	**0.02**	3	0	**0**	3	0	**0**	**0.02**	**0.44**
	08-Nov	90	17	34	**0.47**	44	0	**0**	34	11	**0.2**	**0.54**	
	09-Mar	90	17	55	**0.75**	58	1	**0.03**	51	8	**0.21**	**0.78**	
F	**08-May**	90	5	1	**0.01**	6	0	**0**	6	0	**0**	**0.01**	**0.16**
	08-Nov	90	13	7	**0.09**	19	0	**0**	18	1	**0.01**	**0.10**	
	09-Mar	90	10	28	**0.35**	28	3	**0.05**	31	0	**0**	**0.37**	
G	**08-May**	90	3	2	**0.02**	5	0	**0**	5	0	**0**	**0.02**	**0.33**
	08-Nov	90	14	27	**0.36**	40	0	**0**	40	0	**0**	**0.36**	
	09-Mar	90	17	48	**0.66**	54	1	**0.03**	55	0	**0**	**0.66**	
I	**08-May**	45	7	1	**0.03**	6	2	**0.05**	8	0	**0**	**0.07**	**0.19**
	08-Nov	45	9	2	**0.06**	5	5	**0.13**	10	0	**0**	**0.17**	
	09-Mar	45	8	6	**0.16**	6	8	**0.21**	14	0	**0**	**0.31**	

Table 3.2-8 Small Mammal Trapping Abundance Index

			R. megalotis			*Microtus*			*Mus*				
Trapline	**Session**	**Traps***	**Unavail. Traps ** **	**# Captures. *** **	**AI**	**Unavail. Traps ** **	**# Captures**	**AI**	**Unavail. traps ** **	**# Captures**	**AI**	**AI Small Mammals**	**AI Small Mammals All Sessions**
J	**08-May**	45	16	2	**0.07**	13	5	**0.16**	10	9	**0.26**	**0.37**	**0.34**
	08-Nov	45	10	4	**0.11**	14	0	**0**	11	3	**0.09**	**0.18**	
	09-Mar	45	18	2	**0.07**	8	12	**0.32**	15	6	**0.2**	**0.44**	
K	**08-May**	45	6	10	**0.26**	14	1	**0.03**	15	0	**0**	**0.26**	**0.34**
	08-Nov	45	7	14	**0.37**	16	1	**0.03**	17	0	**0**	**0.37**	
	09-Mar	45	10	14	**0.4**	18	3	**0.11**	21	0	**0**	**0.41**	
L	**08-May**	45	4	3	**0.07**	5	2	**0.05**	7	0	**0**	**0.11**	**0.32**
	08-Nov	45	16	8	**0.28**	21	3	**0.13**	24	0	**0**	**0.31**	
	09-Mar	45	15	20	**0.67**	32	1	**0.08**	33	0	**0**	**0.57**	
M	**08-May**	45	7	1	**0.03**	7	1	**0.03**	8	0	**0**	**0.05**	**0.32**
	08-Nov	45	17	16	**0.57**	26	3	**0.16**	29	0	**0**	**0.53**	
	09-Mar	45	17	16	**0.57**	32	0	**0**	32	0	**0**	**0.44**	
N	**08-May**	45	11	2	**0.06**	10	3	**0.09**	13	0	**0**	**0.12**	**0.40**
	08-Nov	45	22	14	**0.61**	31	1	**0.07**	32	0	**0**	**0.47**	
	09-Mar	45	17	25	**0.89**	35	1	**0.10**	36	0	**0**	**0.63**	
Total* **	**08-May**	900	73	32	**0.04**	78	25	**0.03**	95	9	**0.01**	**0.08**	**0.23**
	08-Nov	900	162	154	**0.21**	270	17	**0.03**	268	21	**0.03**	**0.24**	
	09-Mar	900	159	266	**0.36**	329	47	**0.08**	362	15	**0.03**	**0.39**	

** Total traps per trapline multiplied by trap nights*

*** Includes traps that are closed, disturbed (i.e. batting pulled out, moved), no food, bird or lizard capture, and other small mammal species captures*

****Total captures includes only those animals captured during the PM session*

As demonstrated above, traplines (except for Lines C and M) showed a net increase in total abundance between May 2008 and March 2009. Of the 13 traplines used for the study, six were in grassland, four in riparian, two in wetland, and one in coastal bluff scrub habitat. Of these, all four of the riparian, one of the wetland and one of the grassland transects fell within the 1st and 2nd quartiles (top 25% and 50% respectively) of the ranked total abundances including the three trapping sessions. Traplines with the highest total abundance were lines E (0.44), ,N (0.40), J and K (0.34), G (0.33), L and M (0.32),. Lines N, K, M, and L were located in riparian areas with 45 traps available per session. Line J was located within wetlands in the center of the study site and also had 45 traps available per session. Line E was located in grasslands in the northeastern corner of the study site, near the project boundary and neighboring residential and equestrian uses, and had 90 traps available per session. Thus, the first and second quartiles include transects in riparian or wetland habitats, with the exception of Lines E and G. Conversely, the third and fourth quartiles include primarily those transects in grasslands, with the exception of Line E, the one coastal bluff scrub (Line G) and one wetland transect (Line I). In examining the total abundance of all lines and habitats sampled during the three trapping sessions, it is clear that the riparian and wetland habitats onsite have a higher abundance of small mammals than those of the grasslands (with the exception of Line E).

Table 3.2-9 summarizes abundance for each trapping session by trapline. The table illustrates the contribution of each species to the total abundance, the habitat of each line, and allows comparisons among sessions. Each session is sorted based on the total abundance of the three key prey species of kite. Specifically, this table illustrates where abundance of the three species is highest during each trapping session and transitions between locations throughout the study.

Table 3.2-9 Trapline Abundance (Sorted) per Trapping Session

May					
		R. megalotis	*Microtus*	*Mus*	
Trapline	**Location**	**Abundance index**	**Abundance index**	**Abundance index**	**All Small Mammals**
J	Wetland	0.07	0.16	0.26	0.37
K	Riparian	0.26	0.03	0	0.26
N	Riparian	0.06	0.09	0	0.12
L	Riparian	0.07	0.05	0	0.11
A	Grassland	0.01	0.10	0	0.11
I	Wetland	0.03	0.05	0	0.07
B	Grassland	0.04	0.01	0	0.06
M	Riparian	0.03	0.03	0	0.05
D	Grassland	0.02	0.01	0	0.03
G	Bluff	0.02	0	0	0.02
E	Grassland	0.02	0	0	0.02
F	Grassland	0.01	0	0	0.01
C	Grassland	0.01	0	0	0.01

Table 3.2-9 Trapline Abundance (Sorted) per Trapping Session

November					
		R. megalotis	*Microtus*	*Mus*	
Trapline	**Location**	**Abundance index**	**Abundance index**	**Abundance index**	**Total**
E	Grassland	0.47	0	0.20	0.54
M	Riparian	0.57	0.16	0	0.53
N	Riparian	0.61	0.07	0	0.47
K	Riparian	0.37	0.03	0	0.37
G	Bluff	0.36	0	0	0.36
L	Riparian	0.28	0.13	0.20	0.31
A	Grassland	0.24	0	0.02	0.25
J	Wetland	0.11	0	0.09	0.18
I	Wetland	0.06	0.13	0	0.17
F	Grassland	0.09	0	0.01	0.10
C	Grassland	0.02	0.05	0.02	0.09
B	Grassland	0.04	0	0.04	0.07
D	Grassland	0.06	0	0	0.06
March					
		R. megalotis	*Microtus*	*Mus*	
Trapline	**Location**	**Abundance index**	**Abundance index**	**Abundance index**	**Total**
E	Grassland	0.75	0.03	0.21	0.78
G	Bluff	0.66	0.03	0	0.66
N	Riparian	0.89	0.10	0	0.63
L	Riparian	0.67	0.08	0	0.57
J	Wetland	0.07	0.32	0.20	0.44
M	Riparian	0.57	0	0	0.44
K	Riparian	0.40	0.11	0	0.41
A	Grassland	0.28	0.16	0.02	0.38
F	Grassland	0.35	0.05	0	0.37
I	Wetland	0.16	0.21	0	0.31
B	Grassland	0.18	0.03	0	0.20
D	Grassland	0.13	0.06	0	0.18
C	Grassland	0.05	0	0	0.05

In May 2008 the areas with the highest abundance (1^{st} quartile) included Lines J, K, and N (wetland and riparian habitats). In November 2009 the 1^{st} quartile included Lines M, N, and E (two riparian and one grassland trapline). In 2009 the 1^{st} quartile included Lines N, E, and L (two riparian and one grassland trapline). The second quartile for each session also generally included two riparian or wetland traplines and either the bluff (Line G) or the County parcel grassland (Line A) which is adjacent to riparian woodlands. In comparing each session, four out of five of the lowest scoring traplines were located in grasslands each session.

An inspection of the tables above and the raw data illustrate that *R. megalotis* is the most abundant kite prey species that were caught during the trapping sessions. As noted above, these animals prefer access to grasslands and water with shrub cover, and they were caught most frequently along Line E (which contained a mixture of Harding grass, ruderal vegetation, and coyote brush, and crosses through a wetland), along the ecotone between grasslands and riparian areas (Lines L, M, N, and K) and in the coastal bluff scrub (Line G). The favored prey, *Microtus*, was trapped primarily in the wetlands (Lines I and J) and along the fringe of the riparian (Line M), and also the annual grassland on the County parcel (Line A). *Mus* captures were limited to only a few locations, with most caught in the wetland at Line J, near the residences and in the mixed vegetation of Line E, and along the riparian edge of Line L (south of Line J). Few small mammals were caught along those lines dominated by Harding grass (Lines B, C, D, and F). *Neotoma*, an additional potential prey species, was found only in the wetland and riparian areas along the drainages (Lines J, K, L, M, and N)

The table reiterates that the largest abundance of small mammals is generally located within or near the riparian and wetland habitats onsite. Line E, which is located in a more mixed grouping of habitats than the other traplines and also is located near residential development along the eastern study boundary (which may explain the relatively larger number of the exotic *Mus* caught on this line).

Acoustical Bat Detection Surveys

A total of seven bat species was detected during the three survey events in April, August and October. Substantial variation occurred in the number of bat calls detected per night, both during the walking and stationary survey methods (Table 3.2-10). For the walking transects, the survey event with the highest number of calls recorded was April and the least number of calls was recorded during August. The highest species diversity was detected during the April surveys (Table 3.2-11). Calls with species-determining characteristics were confirmed for all species listed. Four special-status species were detected (Table 3.2-11). Figure 3.2-5 illustrates those locations where bat species were detected. Note that multiple calls may have been identified at a given location. Each species identified at a single point is shown with a separate icon and only one point is provided for each species identified.

April Survey - A total of 114 bat calls representing six species was recorded during the walking transects. The following species were identified (Table 3.2-11); western mastiff (California species of Special Concern (CSC); Western Bat Working Group: High (WBWG:H), western red bat (CSC; WBWG:H), hoary bat (WBWG:Medium), California myotis, Yuma myotis, and Mexican free-tail. Mexican free-tail was the most abundant species detected and accounted for approximately 85% of the calls.

August Survey - A total of 277 calls was recorded. Of these, 61 were recorded during the walking surveys and 216 were recorded from the stationary survey location in the riparian corridor adjacent to the FC pond. The following species were identified; big brown bat, western red bat, California myotis, Yuma myotis, and Mexican free-tail. Big brown bat appeared to be the most abundant species detected, followed by Mexican free-tail and the two Myotis species. There were two confirmed western red bat calls and two other potential western red bat calls.

October Survey - A total of 97 calls was recorded. Of these, 71 were recorded during the walking surveys and 26 were recorded from the stationary survey location in the riparian corridor adjacent to the FC pond. The following species were positively identified; California myotis, Yuma myotis, and Mexican free-tail. Additional calls were recorded that could be big brown bat and hoary bat (species that were previously confirmed as occurring at More Mesa during the April and August survey events), but lacked species-determining characteristics. Mexican free-tail was the most abundant species detected during the October surveys (approximately 70%).

Table 3.2-10 Number of Calls Recorded per Survey Event

Date	Walking Survey	Overnight Survey
April 17	33	NA*
April 18	74	NA*
April 19	7	NA*
August 3	NA*	67
August 4	NA*	29
August 5	NA*	61
August 6	NA*	92
August 7	37	NA**
August 8	19	15
August 9	5	4
October 3	59	NA***
October 4	6	7
October 5	6	19

** Survey not scheduled.*
*** Data not accessible due to technical problem.*
**** Detector not used overnight due to rain.*

Table 3.2-11 Bat Species Detected per Survey Event

Scientific Name	Common Name	Survey Event		
		April	August	October
Eptesicus fuscus	big brown bat	--	Y	P
Eumops perotis	western mastiff	Y (2)	--	--
Lasiurus blossevillii	western red bat	Y (1)	Y (2)	--
Lasiurus cinereus	hoary bat	Y (4)	--	P
Myotis californicus	California myotis	Y	Y	Y
Myotis yumanensis	Yuma myotis	Y	Y	Y
Tadarida brasiliensis	Mexican free-tail	Y	Y	Y
Total Number of Species Detected		**6**	**5**	**3-5**

-- = species not detected during acoustic surveys
Y = Yes, species detected during acoustic surveys
([1])=number of calls for species with fewer than 5 diagnostic calls across all surveys.
P = possibly present. Recorded calls were not diagnostic.

Listing Status of Detected Bats

Four of the detected species have special conservation status (Table 3.2-11). The western mastiff and western red bat are listed by the California Department of Fish and Game (CDFG) as California Species of Concern and by WBWG as highest priority for funding, planning, and conservation actions. WBWG considers these species imperiled.

Hoary bat and Yuma myotis are on the CDFG Special Animal list (CDFG, 2009a). Hoary bat is considered a "Medium" conservation priority by the WBWG. Medium priority by this classification is defined as, "a level of concern that should warrant closer evaluation, more research, and conservation actions of both the species and possible threats. A lack of meaningful information is a major obstacle in adequately assessing these species' status and should be considered a threat" (WBWG, 2007). Yuma myotis is considered a "low to medium" conservation priority. Low priority by this classification indicates that, "most of the existing data support stable populations of the species, and the potential for major changes in status in the near future is considered unlikely. While there may be localized concerns, the overall status of the species is believed to be secure. Conservation actions would still apply for these bats, but limited resources are best used on red and yellow species" (WBWG, 2007).

Bat Species Detected
(April, August, and October 2008)
Figure 3.2-5

More Mesa as Habitat

More Mesa provides foraging habitat for western mastiff and Mexican free-tail. The study area provides foraging habitat for, and may provide roosting habitat for, western red bat (in foliage of large cottonwood, sycamore, or willow trees), hoary bat (in foliage of both coniferous and deciduous trees), California myotis (under tree bark), and Yuma myotis (under tree bark) (Table 3.2-11); however, no bat roosts were observed during the study period, nor did the acoustic data indicate that specific roosts were present.

Table 3.2-12 Habitat and Status of Bat Species Detected

Scientific Name	Common Name	Status	Roosting Habitat	Detection Habitat
Eptesicus fuscus	Big brown bat		Buildings, bridges, mines, caves	In grassland and Eucalyptus woodland along southeastern boundary of property
Eumops perotis	Western mastiff	CSC; WBWG:H	Crevices in cliffs, boulders, buildings. Require ~3 meter drop below roost be get into flight. Travels long distances from roosts to forage and for water.	Oak woodland habitat in County parcel, near County pond, southeasternmost corner of FC parcel.
Lasiurus blossevillii	Western red bat	CSC; WBWG:H	Roost in foliage of large deciduous trees (sycamores, cottonwoods, willow) or shrubs in habitats bordering forests, rivers, cultivated fields and urban areas.	Grassland habitat eastern extent of east drainage. In mixed willow riparian habitats by FC pond. On riparian edge with grassland habitat in center of eastern drainage.
Lasiurus cinereus	Hoary bat	WBWG:M; CDFG Special Animal	Roost primarily in foliage of both coniferous and deciduous trees, near the ends of branches, 3-12 m above the ground. Roosts are usually at the edge of a clearing.	Grassland and Eucalpytus woodland near southeastern corner. On western property line in grassland habitat.
Myotis californicus	California myotis		Roosts in multiple habitats. In summer bats roost alone or in small groups in caves, mines, rocky hillsides, under tree bark, and in buildings. In winter solitary individuals and small groups have been found in caves, mines and buildings.	Grassland habitat near palm trees on eastern property line. In mixed willow habitat east of FC pond. Myotis spp. detected in riparian habitat within study area, but east of southeast corner of Co. parcel.
Myotis yumanensis	Yuma myotis	CDFG Special Animal	Roosts in multiple habitats. Roosts in bridges, buildings, cliff crevices, caves, mines, and trees. Usually associated with permanent sources of water, typically rivers and streams.	Riparian corridor in NW corner of County parcel. In grassland habitat.
Tadarida brasiliensis	Mexican free-tail		Roosts in multiple habitats. Caves and rock crevices on cliff faces; abandoned mines, tunnels, highway bridges, large culverts, buildings, bat houses. Often fly more than 50km to reach foraging habitat.	Riparian, wetland, grassland, scrub, oak woodland, eucalyptus woodland, and FC pond. Found on County parcel and throughout site except SW corner.

CSC = California Species of Concern
WBWG:M = Western Bat Working Group: Medium Priority
WBWG:H = Western Bat Working Group: High Priority

3.2.4 COMPARISON WITH 1982 STUDY

A total of 21 mammal species were recorded within the study area during the 1981-1982 (1982) study and 24 species recorded during the 2008-2009 (2009) study. Species identified in the previous study, but not observed during the 2009 study include: Gray fox (*Urocyon cinereoargenteus*) and Western Pipistrelle (*Pipistrellus Hesperus*). Species observed during the 2009 surveys, but not observed in 1982 include: Western mastiff (*Eumops perotis*), California myotis (*Myotis californicus*), Red bat (*Lasiurus blossevillii*), Yuma myotis (*Myotis yumanensis*), and Coyote (*Canis latrans*). Table 3.2-12 identifies those species observed during the current and/or 1982 study.

Table 3.2-13 Comparison of Mammal Species Observed in 1982 and 2009

Order and Family	Common name	Scientific name	Observed 1982	Observed 2009
Didelphimorphia				
Didelphidae	Opossum	*Didelphis marsupialis*	Y	Y
Insectivora				
Soricidae	Ornate shrew	*Sorex ornatus*	Y	Y
Talpidae	Broad-footed mole	*Scapanus latimanus*	Y	Y
Chiroptera				
Molossidae	Mexican free-tail	*Tadarida brasiliensis*	Y	Y
	Western mastiff	*Eumops perotis*		Y
Vespertilionidae	Big brown bat	*Eptesicus fuscus*	Y	Y
	California myotis	*Myotis californicus*		Y
	Hoary bat	*Lasiurus cinereus*	Y	Y
	Red bat	*Lasiurus blossevillii*		Y
	Yuma myotis	*Myotis yumanensis*		Y
	Western pipistrelle	*Pipistrellus hesperus*	Y	
Carnivora				
Procyonidae	Raccoon	*Procyon lotor*	Y	Y
Mustelidae	Striped skunk	*Mephitis mephitis*	Y	Y
	Long-tailed weasel	*Mustela frenata*	Y	Y
Canidae	Coyote	*Canis latrans*		Y
	Dog	*Canis lupus familiaris*	Y	Y
	Gray Fox	*Urocyon cinereoargenteus*	Y	
Felidae	Cat	*Felis catus*	Y	Y
Rodentia				
Sciuridae	California ground squirrel	*Spermophilus beecheyi*	Y	Y
Geomyidae	Botta's pocket gopher	*Thomomys bottae*	Y	Y
Cricetidae	Western harvest mouse	*Reithrodontomys megalotis*	Y	Y
	Big-eared woodrat	*Neotoma macrotis (formerly known as fuscipes)*	Y	Y
	California vole	*Microtus californicus*	Y	Y
Muridae	Black rat	*Rattus rattus*	Y	Y
	House mouse	*Mus musculus*	Y	Y
Lagomorpha				
Leporidae	Brush rabbit	*Sylvilagus bachmani*	Y	Y

Of the two species not detected recently, the gray fox may have historically been present, but due to the presence of humans, domestic dogs and coyote, this species is no longer utilizing the site. Western pipistrelle may have previously utilized the site, but were not detected during recent surveys. The species observed recently are mainly bat species that require specialized equipment and survey techniques that were not utilized during the 1982 study. The presence of coyote is common throughout the Goleta Valley and the species was considered a possible and rare visitor to the site in 1982, but not observed.

Table 3.2-14 1982 and 2008-2009 Small Mammal Trapping Comparison of Transect Habitat, Configuration, and Trap Number

2008/2009 Transect ID	1981/1982 Transect ID	2008/2009 Habitat Characterization	1981/1982 Habitat Characterization	2008/2009 Transect Configuration	1981/1982 Transect Configuration	2008/2009 Number of Traps	1981/1982 Number of Traps
A	F	Grassland	D. wildoat, SD. ripgut	Parallel Line	Grid	30	21
B	A	Grassland	D. wildoat, SD. ripgut	Parallel Line	Grid	30	40
C	B	Grassland	D. wildoat, SD. coyote brush	Parallel Line	Grid	30	44
D	C	Grassland	D. wildoat, SD. ripgut	Parallel Line	Grid	30	45
E		Grassland		Parallel Line		30	
F	D	Grassland	D. harding grass, SD. wildoat	Parallel Line	Grid	30	30
G		Bluff		Parallel Line		30	
I	H	Wetland	Wetland	Single Line	Single Line	15	10
J	E	Wetland	Wetland	Single Line	Grid	15	20
K		Riparian		Single Line		15	
L		Riparian		Single Line		15	
M	G	Riparian	Wetland	Single Line	Single Line	15	12
N		Riparian		Single Line		15	
Total						**300**	**222**

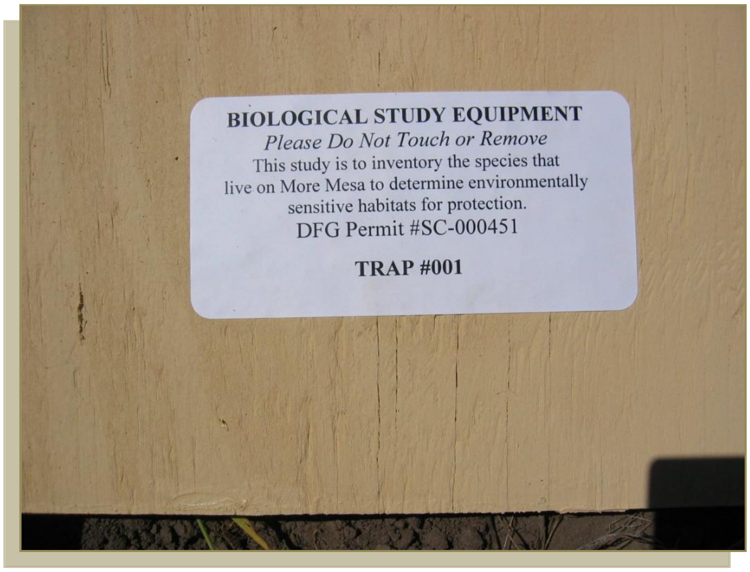
Figure 3.2-6 and 3.2-7 illustrate the small mammal trapping locations and acoustical bat detection survey results as compared with the physiographic boundaries identified in the 1982 Study.

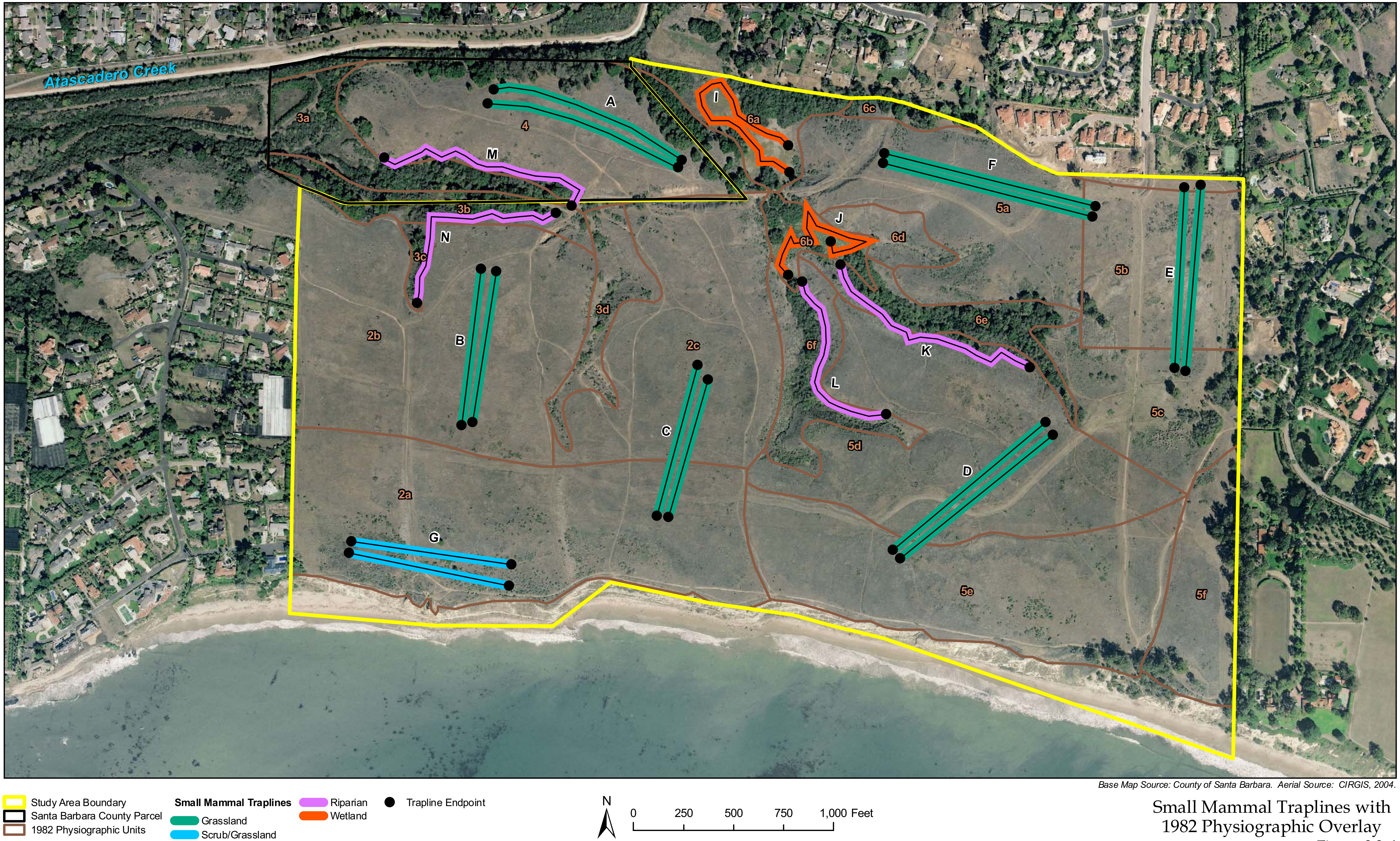
Small Mammal Trapping

Table 3.12-15 provides a comparison of the small mammal trapping transects, their associated habitats, configuration, and number of traps utilized in the 1982 study and the current study. It is important to note that two transects could not be placed exactly at the location of two transects utilized during the 1982 study. Line G of the 1982 study was placed in a wetland area that is now dominated by poison oak. Traps were thus placed nearby in riparian areas, identified as Line M below. Trap grid E, as identified in the 1982 study, also could not be reached due to overgrowth and poison oak. A trapline was placed nearby in what is identified as trapline J. As detailed in the table below, traplines G and E of the 1982 study can be compared with lines M and J of the current study.

The following provides a detailed comparison of captures and abundance for the 1982 and 2009 study periods. It is important to note here the distinction between the abundance index provided for the current study in this table versus Table 3.2-8, *Small Mammal Trapping Abundance Index*, in the results section above. The previous table calculated the abundance index by dividing the total number of captures by the number of "available traps." Traps were considered unavailable if they had captured another species, were open with no food (escapee), closed with no capture, or were disturbed and essentially unavailable for a capture. The 1982 study considered only broken or missing traps as unavailable. Therefore, to allow for comparison, the following table (Table 3.2-15) calculates abundance for both the 1982 and 2009 study using all traps set, ignoring unavailable traps.

There are several substantial differences in the results between the 1982 and current study. The current study had a total of 900 available traps during each trapping session as compared with 800, 832, and 824 for August, January, and May respectively in the 1982 study. Given the similarity in the total number of available traps, there was a significant increase in the number of *Microtus* captured in the recent study. Forty-five *Microtus* were captured in 1982 and 89 were captured in 2009, nearly double the number. Further, 44 of the 45 *Microtus* captured in 1982 were during a single session, May 1982. Of these, the majority were concentrated on two lines within wetland habitat. Line E (Line J in 2009), located in a drainage in the center of the site, had 25 captures in 1982 during the May session. Another nine captures in May were on Line H (Line I in 2009), also in wetland habitat. The remaining 10 *Microtus* captured in May 1982 were along three grassland transects. In 2009 the *Microtus* captures were distributed throughout the study year. Of the total 89 captures of *Microtus* in 2008-2009, 28% were in May 2008, 19% in November 2008, and 53% in March 2009. Additionally, these were spread throughout the site with captures on every line. The three lines with the highest *Microtus* abundance were Line A (Line F in 1982) with 19 captures located on the County parcel in grasslands; Line J (Line E in 1982) with 17 captures located in wetlands near the center of the site; and Line I (Line H in 1982) with 15 captures located in wetlands at the site's northern boundary.





Base Map Source: County of Santa Barbara. Aerial Source: CIRGIS, 2004.

Small Mammal Traplines with 1982 Physiographic Overlay

Figure 3.2-6

Bat Detection Locations with
1982 Physiographic Overlay

Figure 3.2-7

Table 3.2-15 Comparison of 1982 and 2009 Small Mammal Abundance Indices

						R. megalotis				***Mictrotus***				***Mus***					
Trapline		**Session**		**Total traps***		**Captures****		**AI**		**Captures****		**AI**		**Captures****		**AI**		**%Trap Success**	
1982	**2009**	1982	2009	1982	2009	1982	2009	1982	2009	1982	2009	1982	2009	1982	2009	1982	2009	1982	2009
F	**A**	Aug 81	May 08	84	90	10	1	0.12	0.01	0	9	0.00	0.10	11	0	0.13	0.00	25	11
		Jan 82	Nov 08	84	90	5	18	0.06	0.20	1	0	0.01	0.00	32	1	0.38	0.01	45	21
		May 82	Mar 09	84	90	5	21	0.06	0.23	2	10	0.02	0.11	5	1	0.06	0.01	14	36
A	**B**	Aug 81	May 08	160	90	0	4	0.00	0.04	0	1	0.00	0.01	10	0	0.06	0.00	6	6
		Jan 82	Nov 08	160	90	8	3	0.05	0.03	0	0	0.00	0.00	9	3	0.06	0.03	11	7
		May 82	Mar 09	160	90	10	16	0.06	0.18	0	2	0.00	0.02	12	0	0.08	0.00	14	20
B	**C**	Aug 81	May 08	176	90	6	1	0.03	0.01	0	0	0.00	0.00	0	0	0.00	0.00	3	1
		Jan 82	Nov 08	160	90	14	2	0.09	0.02	0	4	0.00	0.04	6	2	0.04	0.02	13	9
		May 82	Mar 09	160	90	4	4	0.03	0.04	2	0	0.01	0.00	6	0	0.04	0.00	8	4
C	**D**	Aug 81	May 08	180	90	7	2	0.04	0.02	0	1	0.00	0.01	13	0	0.07	0.00	11	3
		Jan 82	Nov 08	180	90	13	5	0.07	0.06	0	0	0.00	0.00	13	0	0.07	0.00	14	6
		May 82	Mar 09	180	90	29	11	0.16	0.12	0	5	0.00	0.06	21	0	0.12	0.00	28	18
	E		May 08		90		2		0.02		0		0.00		0		0.00		2
			Nov 08		90		34		0.38		0		0.00		11		0.12		50
			Mar 09		90		55		0.61		1		0.01		8		0.09		71
D	**F**	Aug 81	May 08	120	90	1	1	0.01	0.01	0	0	0.00	0.00	1	0	0.01	0.00	2	1
		Jan 82	Nov 08	120	90	11	7	0.09	0.08	0	0	0.00	0.00	0	1	0.00	0.01	9	9
		May 82	Mar 09	120	90	17	28	0.14	0.31	6	3	0.05	0.03	0	0	0.00	0.00	19	34
	G		May 08		90		2		0.02		0		0.00		0		0.00		2
			Nov 08		90		27		0.30		0		0.00		0		0.00		30
			Mar 09		90		48		0.53		1		0.01		0		0.00		54
H	**I**		May 08		45		1		0.02		2		0.04		0		0.00		7
			Nov 08		45		2		0.04		5		0.11		0		0.00		16
		May 82	Mar 09	40	45	8	6	0.20	0.13	9	8	0.23	0.18	0	0	0.00	0.00	43	31

Table 3.2-15 Comparison of 1982 and 2009 Small Mammal Abundance Indices

						R. megalotis				*Mictrotus*				*Mus*					
Trapline		**Session**		**Total traps***		**Captures****		**AI**		**Captures****		**AI**		**Captures****		**AI**		**%Trap Success**	
1982	**2009**	1982	2009	1982	2009	1982	2009	1982	2009	1982	2009	1982	2009	1982	2009	1982	2009	1982	2009
E	**J**	Aug 81	May 08	80	45	26	2	0.33	0.04	0	5	0.00	0.11	10	9	0.13	0.20	45	36
		Jan 82	Nov 08	80	45	31	4	0.39	0.09	0	0	0.00	0.00	0	3	0.00	0.07	39	16
		May 82	Mar 09	80	45	21	2	0.26	0.04	25	12	0.31	0.27	3	6	0.04	0.13	61	44
	K		May 08		45		10		0.22		1		0.02		0		0.00		24
			Nov 08		45		14		0.31		1		0.02		0		0.00		33
			Mar 09		45		14		0.31		3		0.07		0		0.00		38
	L		May 08		45		3		0.07		2		0.04		0		0.00		11
			Nov 08		45		8		0.18		3		0.07		0		0.00		24
			Mar 09		45		20		0.44		1		0.02		0		0.00		47
G	**M**		May 08		45		1		0.02		1		0.02		0		0.00		4
		Jan 82	Nov 08	48	45	13	16	0.27	0.36	0	3	0.00	0.07	0	0	0.00	0.00	27	42
			Mar 09		45		16		0.36		0		0.00		0		0.00		36
	N		May 08		45		2		0.04		3		0.07		0		0.00		11
			Nov 08		45		14		0.31		1		0.02		0		0.00		33
			Mar 09		45		25		0.56		1		0.02		0		0.00		58
Total		Aug 81	May 08	800	900	50	32	0.53	0.57	0	25	0.00	0.43	45	9	0.40	0.20	12	7
		Jan 82	Nov 08	832	900	95	154	1.02	2.36	1	17	0.01	0.33	60	21	0.55	0.27	19	21
		May 82	Mar 09	824	900	94	266	0.91	3.88	44	47	0.62	0.80	47	15	0.33	0.23	22	36
														Average Trap Success				18	22

** Total traps per trapline multipled by trap nights (e.g. 30 * 3 = 90 traps)*

*** Total captures includes only those animals captured during the nighttime session*

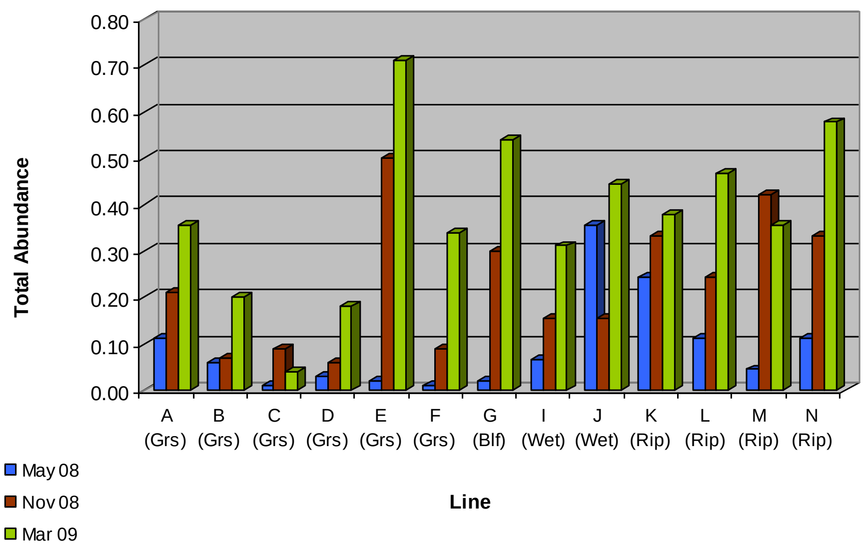
*% Trap Success = (Number of small mammal captured/total traps) *100*

AI = Abundance Index

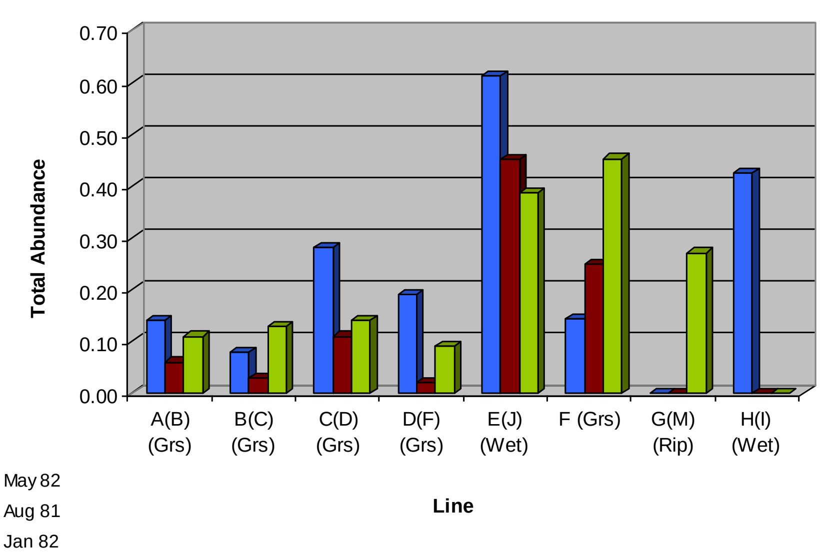
The 1982 study showed a much higher abundance of *Mus* throughout the study site. In 1982 a total of 152 *Mus* were captured as compared with only 45 in 2009. Grassland traplines with high *Mus* abundance in 1982 had few to no *Mus* captures in 2009. In 2009, the majority of these captures were concentrated on just two lines, Line E (not sampled in 1982) and Line J (Line E in 1982). Line E is considered more disturbed habitat due to previous land uses in the area and its proximity to residential and equestrian use. Line E was added to the study effort in 2009 to document the habitat value of disturbed sites and because such sites were specifically excluded from the trapping efforts in 1982. Line J is located within wetland habitat. As noted in the Introduction, the home range for *Mus* is known to vary with the density of *Microtus*. Thus, the expansion of *Microtus* numbers within the grasslands of More Mesa may explain the decline in *Mus*. This pattern is most apparent on Lines A - D.

Figure 3.2-8 illustrates the fluctuation in total abundance for each line for both the 2009 and 1982 study periods.

Figure 3.2-8 Total Abundance Per Line
2009



1982



**The 1982 X axis labels = 1982 Line ID (2009 line equivalent) and (habitat abbreviation).*

A third distinction to be made between the two studies is the substantial increase in *R. megalotis* captures during the 2009 study. As noted in the previous section, the increase in capture rates for all species, especially *R. megalotis*, would suggest an upswing in the population cycle for small mammals at the study site. The total number of *R. megalotis* captured in 2009, 452, was almost double the number captured in 1982, 239.

The overall trap success was comparable between the two studies: 18% success in 1982 and 22% success in 2009. What is most notable is the transition in the percent total of captures for each species between the two study years. *R. megalotis* captures made up 55% of the total captures in 1982, this increased to 77% in 2009. *Microtus* accounted for 10% of the total captures in 1982 and increased to 15% of the total captures in 2009. Whereas the 1982 study concluded that "voles are virtually absent until the spring trap session" and, thus, available only in low densities over much of the Mesa during most of the year; the 2009 study resulted in captures throughout the study year and the site on every line. Additionally, the 2009 study showed an increase in abundance of the two species, *R. megalotis* and *Microtus*, which are more active during daylight hours and a decrease in the percent of total captures of *Mus*. The total captures of *Mus,* which are predominantly nocturnal and infrequently occur far from cover, decreased from 35% in 1982 to 8% in 2009.

In summary, the 2009 study shows an overall increase in abundance of small mammals and confirms that abundance is highest in wetland and riparian habitats. The study results also showed variations throughout the year of all three species, and no consistent seasonal pattern. Whereas the 1982 study found *Microtus* to be available as prey for raptors only at low densities throughout the site, the 2009 study found the species to be more available and in higher numbers. Additionally, the 2009 study showed *Mus* to be less available and with a more limited distribution than in 1982. Lastly, *R. megalotis* were found to be the most abundant species in both studies and readily available throughout the site.

3.2.5 DISCUSSION

No federally listed mammal species were observed at the study site; however, four species have state listing status. The western mastiff and western red bat are listed by the California Department of Fish and Game (CDFG) as California Species of Concern and by WBWG as highest priority for funding, planning, and conservation actions. WBWG considers these species imperiled. Hoary bat and Yuma myotis are on the CDFG Special Animal list.

More Mesa provides foraging habitat for western mastiff, but this species is not expected to roost onsite because there is a lack of suitable roosting habitat. The property provides foraging habitat and may provide roosting habitat for western red bat. The western red bat may roost in trees such as large cottonwoods, sycamores, or willows. Potential roosting habitat for this species may be found along the northern and northwestern project boundaries, as well as the County parcel. There are also thick willows within the eastern drainage. Each of these locations fall within the areas defined by the California Coastal Commission CCC as wetlands, or are located within already protected lands, and thus would not be subject to development. Hoary bats feed primarily on moths. Eleven common butterflies and one moth, *Perizoma custodiata*, were observed within the study area during invertebrate surveys in 2008. Hoary bats would not be expected to roost onsite due to the limited size of woodlands on More Mesa. Yuma myotis feed on a wide variety of small flying insects, usually over water sources such as ponds and streams. Suitable foraging habitat is present near the study site along Atascadero Creek and the FC ponds north and west of the study site. Suitable roosting habitat for Yuma myotis, buildings, caves, mines, and under bridges, is not present at the study site.

Although no special-status small mammal species were observed onsite, small mammals were considered in this study for their importance as the prey-base for kites and other foraging raptors (i.e. Cooper's hawk, red-shouldered hawk, red-tailed hawk and northern harrier). Small mammal diversity at More Mesa is low; however, as noted in the 1982 study this is typical of similar areas nearby. The 2009 study results, consistent with findings in the 1982 study, show that the largest abundance of small mammals is generally located within or near the riparian and wetland habitats onsite. In comparing each 2008-2009 trapping session, four out of the top five scoring traplines were either located in riparian or wetland habitat for the May and November 2009 sessions. In March 2009, four out of the top six scoring traplines were riparian or wetland. Conversely, four out of five of the lowest scoring traplines in all sessions were located in grasslands.

Riparian habitats are understood to function as dispersal corridors for wildlife species. As demonstrated in numerous studies, the abundance of small mammals and herpetofauna increases with the complexity of the vegetative structure. Previous research has suggested that wildlife rely more heavily on riparian zones as routes of dispersal than any other habitat type (Thomas et al., 1979). Provided with food, shelter and water, in such habitats they are more likely to successfully emigrate to new areas. Although this information provides that riparian and wetland habitats do have a higher abundance of small mammals, in the context of the larger ecosystem and the importance of small mammals for kite and other raptors at the study site, this does not equate to a higher sensitivity over that of grasslands. Because the kite is adapted to foraging over open, grassland communities, wetland or riparian habitat alone would not constitute suitable foraging habitat for the species. Rather, grasslands, although of a lower small mammal abundance, are necessary to support foraging kites, but require adjacent feeder wetland and riparian habitats to maintain those small mammal numbers. It follows in recent results that those traplines located in grasslands nearer riparian or wetland habitats have a higher abundance than those farther removed. Thus, abundance of small mammals is highest in the riparian and wetland (or more complex vegetative structures: i.e. woodlands and coastal bluff scrub) habitats onsite and decreases with distance and reduction in vegetative diversity. The traplines with the lowest abundance (B, C, and D) were those farthest from riparian and wetland habitats and located in the most homogeneous vegetation.

Given that kites forage primarily within open grasslands, where small mammal abundance is lowest onsite, it is not possible to base habitat sensitivity solely on the abundance of small mammals. As noted in a coastal commission letter regarding determination of ESHA, many raptors “make use of grasslands for foraging because they provide essential habitat for small mammals and other prey. Grasslands adjacent to woodlands are particularly attractive to these birds of prey since they simultaneously offer perching and foraging habitat (Dixon, 2003).” Kite, like many other birds, depend upon not just grasslands or riparian habitat, but a multi-community ecosystem. The above information reinforces the importance and sensitivity of riparian and wetland habitats onsite, specifically when adjacent to open grasslands.

The primary food source of kites, small mammals, has increased in abundance at More Mesa, as compared with the 1982 study. This includes an increase in abundance of the kites main prey item, *Microtus*. As noted above, *Microtus* captures were more geographically and temporally distributed than was observed in 1982. The increase in *Microtus* captures within grasslands is significant, making the larger of the key prey items more available to foraging kites, than was observed in 1982. During focused kite foraging surveys (Refer to Section 3.1 Birds), a total of 85 foraging observations were made with known prey captures. Forty-nine were small mammals and 36 were of unknown taxa (e.g. lizard, insect, etc.). A total of 25 (51.0%) of the 49 small mammals were identified as *Microtus*, followed by 18 (36.7%) unknown species, and six (12.2%) mouse or non- *Microtus* species.

Microtus weight averages between 1.0 - 2.5 ozs, about three times more than *Mus* (0.4 – 0.8 ozs) and more than four times heavier than *R. megalotis* (0.3 – 0.5 ozs). The increase of *Microtus* in grassland habitats may have contributed to a decrease in *Mus*. *Mus* are predominantly nocturnal, limiting their availability to kites during the crepuscular hours, while *Microtus* are active throughout the day and night. The decrease of *Mus* and increase of *Microtus* means an increase in availability of more energy rich food for kites in grasslands on More Mesa. It is important to note that although there has been an increase in small mammal abundance throughout the site, microtine populations fluctuate and the current conditions at the site are not likely to remain stable over time.

In addition to *Microtus*, *R. megalotis* increased in abundance throughout the site. Although much smaller than *Microtus*, this species is considered an important alternative food source for kites. Both Waian (1973) and the 1982 study found *R. megalotis* in much lower abundance than the current study. Small mammal trapping conducted in 1971 by Waian and Stendell along a single line on what is now the County owned parcel (Trapline F in the 1982 study and Trapline A in the 2009 study) indicated a higher abundance of *Microtus* over *Mus* and *R. megalotis* throughout the study year. The data illustrated a peak in *Microtus* captures between May and June, corresponding with a low for both *Mus* and *R. megalotis*. Waian concluded that *Microtus* could occur at high densities on the Mesa throughout the year. In the same year three nesting pairs were confirmed at More Mesa. Waian’s data indicated a decreasing trend in the small mammal population towards the end of 1971. The following year only one nesting pair was recorded at More Mesa. Waian’s results differed significantly from those of the 1982 study. Lehman concluded that *Microtus* were available only at low densities over much of the study site and were limited in number until after the first months of the year. He noted observations of kite hunting over grids where no *Microtus* were captured, implying that *Mus* or *R. megalotis* were the target prey instead. Total capture numbers in 1982 for *R. megalotis* were 239, *Mus* 152, and *Microtus* 45. Applying the upper average weight for each of these species the total captures represent near equal mass (roughly 120, 122, and 113 ounces respectively). Although *Microtus* were in lower abundance during 1981 and 1982, two nesting pairs were successful both years. Results of the current study indicate a high abundance of *Microtus* and *R. megalotis*. It follows that in 2008 two pairs successfully nested and in 2009 three pairs successfully nested with a possible second brood as yet unconfirmed (Rincon, 2009).

In conclusion, the small mammal population at More Mesa continues to function on a cyclical basis with high and low productivity years. The current study occurred during a peak in the population cycle. Adequate open space is currently present at the site to maintain a viable *Microtus* population. Reed, et al (1986) indicated that for open spaces to maintain their small mammal populations in the long term, sufficient habitat would be needed to support approximately 500 individuals. Based on a mean home range of 0.37 acres for *Microtus* (G.F. Fisler in Zeiner et al, 1990), a minimum of approximately 185 acres of grassland would be needed to maintain the population on site. Plant community mapping results (Refer to Section 2.2, *Plant Communities*) identified approximately 170 acres of grassland habitat within the More Mesa study site and 16 acres in the Santa Barbara County parcel. Given the historic consistency of kite nesting and foraging within the study site, as opposed to other known nesting locations within Goleta Valley, and the data presented above it is the conclusion of this analysis that More Mesa is of sufficient size to maintain a long-term stable small mammal population. The loss of grassland habitat could exacerbate downswings in microtine population cycles.

3.3 HERPETOLOGICAL FAUNA

3.3.1 INTRODUCTION

Terrestrial and aquatic habitats on More Mesa are suitable for a variety of amphibians and reptiles known to occur in the Santa Barbara region and the south central California coast in general. The objective of the herpetological studies was to inventory the species present and determine whether any special-status species occur on the site, habitat affiliations of these species, and abundance in different areas of the site. These data were evaluated in the habitat sensitivity analysis to determine the extent and nature of Environmentally Sensitive Habitat at the site. The study employed the latest methods and technology to examine amphibian and reptile diversity and abundance at the site, collecting data in a manner to allow comparison with the results of the 1982 study and, thus, determine any differences or trends over time.

Background Review

A target list of amphibian and reptile species that could potentially occur on-site was developed by consulting various species occurrence records. This search included a query of the California Natural Diversity Database (CNDDB; California Department of Fish and Game 2008) for records within the U.S.G.S. 7.5' quadrangles including and immediately adjacent to the site (Dos Pueblos Canyon, Goleta, Santa Barbara, San Marcos Pass, Lake Cachuma, and Little Pine Mountain). The U.S. Fish and Wildlife Service's list of federally threatened and endangered species that may occur in Santa Barbara County was also reviewed (http://www.fws.gov/ventura/speciesinfo/spplists/sl_santabarbara_co.cfm). A review of published and unpublished literature (UCSB, 1982; Storrer and Semonsen, 1992; Jennings and Hayes, 1994; Woodward-Clyde, 1994; LSA Associates, Inc. 1996, 1997) and museum records (Cheadle Center for Biodiversity and Ecological Restoration [formerly Museum of Systematics and Ecology], Santa Barbara Natural History Museum, Museum of Vertebrate Zoology) was also conducted. All special-status amphibian and reptile species recorded in the vicinity of the site were included in the target list (Table 3.3-1).

Table 3.3-1 Special-Status Reptile and Amphibian Species with the Potential to Occur at More Mesa

Species	Status (Federal/ State)	Habitat	Nearest Known Records
REPTILES			
California legless lizard (*Anniella pulchra*)	--/Special Concern	Dune scrub, coastal scrub, chaparral, pine-oak woodland, oak woodland, and riparian woodland; prefers loose soil for burrowing, moisture, warmth, and plant cover but is also found in dry, compacted soils; often found in washes, dune sand, loose soil near bases of slopes, near permanent or temporary streams, in leaf litter and under cover objects (boards, rocks)	Not recorded in the vicinity in the CNDDB. UCSB (1982) reports and museum records are from Goleta Point, Hope Ranch (1979), and the Mesa area of Santa Barbara. One un-cataloged specimen (SSS 32053) collected September 1995 in southwest quadrant of site about 15 feet north of the bluffs.
Blainville's (=coast) horned lizard (*Phrynosoma blainvillii = P. coronatum frontale and P.c. blainvillii*)	--/Special Concern	Grasslands, coniferous forests, sandy washes, woodlands, chaparral and coastal scrub; requires open areas for sunning, shrubs for cover; patches of loose soil for burial and abundance of native ants and other insects	Not recorded in the CNDDB within the site vicinity. UCSB (1982) reports and museum records from the bluffs on the UCSB campus, Isla Vista and Coal Oil Point
Southern Pacific pond turtle (*Actinemys marmorata pallida*)	--/Special Concern	Rivers, ponds, and freshwater marshes; nests in upland areas such as oak woodland, chaparral, coastal scrub and grassland or in drier parts of riparian habitats	Observed in Atascadero Cr. near Patterson Ave. (1982, 1983/1984, 1994), and in the area now occupied by the County mitigation ponds (1977/1979)
Two-striped gartersnake (*Thamnophis hammondii*)	--/Special Concern	Inhabits aquatic sites in summer including streams, coastal lagoons, sloughs, and ponds, and it appears to prefer areas with dense riparian vegetation; in winter they occur in coastal sage scrub and grasslands where they overwinter in small mammal burrows	Known from the ridge and north side of the Santa Ynez Mountains north of Santa Barbara and the Santa Ynez River tributaries, Mission Creek below Seven Falls and Rattlesnake Canyon north of Santa Barbara
AMPHIBIANS			
Arroyo toad (*Bufo californicus*)	Endangered/ Special Concern	Occupies rivers and streams and adjacent riparian, oak woodland, chaparral, grassland and coastal scrub where there are sandy terraces with friable soils; breeding occurs in shallow pools in secondary channels with sand or gravel bars, low current speeds and minimal vegetation	Known to occur in Mono Creek and the Santa Ynez River near Gibraltar Reservoir; not present in coastal areas of Santa Barbara County
California red-legged frog (*Rana draytonii*)	Threatened/ Special Concern	Semi-permanent or permanent water at least 0.5 meter deep, bordered by emergent or riparian vegetation, and upland habitat for refugia and dispersal	Reported calling from one of the County mitigation ponds (1996), and UCSB (1982) reported that it was historically common in drainages into the Goleta Slough; known to currently occupy Bell Canyon/Winchester Canyon in Ellwood

Although the reptiles and amphibians listed above were the special-status species identified as having the potential to occur onsite, other common species of reptiles and amphibians anticipated or previously recorded to utilize the study site or adjacent properties are listed in Table 3.3-2.

Table 3.3-2 Common Reptile and Amphibian Species Known to Occur at More Mesa

Order and Family	Common Name	Scientific Name
Anura		
Bufonidae	Western toad	*Anaxyrus* (=*Bufo*) *boreas*
Hylidae	Northern Pacific treefrog [1]	*Pseudacris* (=*Hyla*) *regilla*
Ranidae	American bullfrog	*Lithobates catesbeianus*
Caudata		
Plethodontidae	Black-bellied slender salamander	*Batrachoseps nigriventris*
Squamata		
Anguidae	Southern alligator lizard	*Elgaria multicarinata*
Colubridae	Common kingsnake	*Lampropeltis getula*
	Gophersnake	*Pituophis catenifer*
	Ring-necked snake	*Diadophis punctatus*
Phrynosomatidae	Common side-blotched lizard	*Uta stansburiana*
	Western fence lizard	*Sceloporus occidentalis*

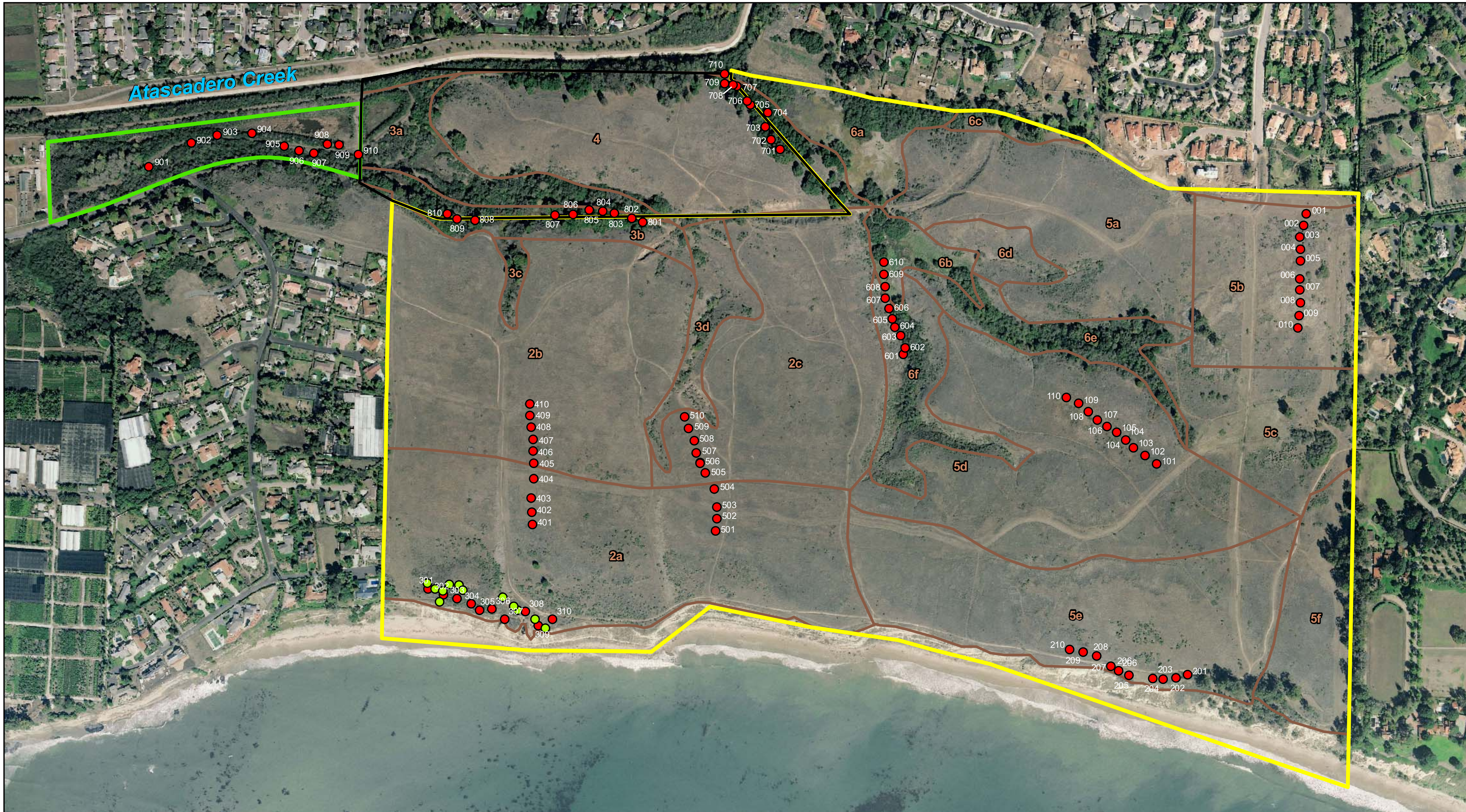
[1] *Also known as Pacific Chorus Frog (Collins and Taggert, 2009)*

3.3.2 METHODOLOGY

Studies of amphibians and reptiles included five components: 1) background review of available information, 2) pitfall trapping, 3) visual encounter surveys, 4) cover boards, and 5) protocol surveys for the California red-legged frog. Nomenclature used in this section follows Moriarty (2008) and species listing status is from California Department of Fish and Game (2008).

Pitfall Trapping

The pitfall trapping design followed methods employed in 1982 by Dr. Samuel Sweet to the extent practicable with a few exceptions. All but one of the ten lines established in the mapped locations provided in the 1982 Study were reused for the current study. The one exception was Dr. Sweet's Line 2, which was relocated to the northeastern corner of the site because this area was no longer in agricultural production and now contains suitable reptile habitat. In addition, this area had formerly been proposed as the most feasible area for potential development, and therefore information on herpetological resources in this portion of More Mesa was needed. Further, the original location of Line 2 was near to two other lines. The locations of the pitfall traps for the current study are shown in Figure 3.3-1. In the 1982 study, the traps were left open continuously and were checked every three weeks. In an effort to reduce unnecessary mortality during this study, traps were checked once every 24 hours during each trapping period. No traps were



Study Area Boundary
Santa Barbara County Parcel
County Flood Control Parcel
1982 Physiographic Units
Pitfall Trap
Coverboard

N

0 250 500 750 1,000 Feet

Base Map Source: County of Santa Barbara. Aerial Source: CIRGIS, 2004.

Pitfall Trap and Coverboard Locations with
1982 Physiographic Overlay

Figure 3.3-1

left open more than 24 hours without being checked. The 1982 study included pitfall trapping in the winter months, however, the current study limited survey efforts to the spring, summer, and fall months when amphibian and reptile species are most active and detectable.

Each line had ten 4-gallon buckets for a total of 100 pitfall traps in the array. Buckets were installed in the ground so that the lip was level with the ground surface, and were spaced approximately 60 feet apart. Plywood lids had 3 inch long "legs" that allowed small animals to walk under the plywood and fall into the buckets when the traps were open. The lids functioned to shade and protect the trapped animals from predators when the traps were open, and sealed tightly when traps were closed by inverting the lids. A piece of fiber fill was added to each bucket to provide insulation for small mammals. For the lines near aquatic or woodland habitats (Lines 7, 8 and 9), a sponge dampened with pond water was added to prevent desiccation of amphibians. An effort was made to conceal bucket locations from public view, but frequent vandalism in some areas required repeated replacement of buckets and lids.

Traps were installed on April 10th - 11th, 2008. An initial trap check of 56 traps was done on April 11th, with all 100 traps open and checked on April 12, 2008. Traps were opened two consecutive days per week on a biweekly basis throughout the study period through October 15, 2008, and were checked approximately every 24 hours. This sampling design provided 29 trap days with all trap lines open and one day with 56 traps open. On April 17th, a portion of the traps were checked and cleared during a half day of trapping effort, and various traps were vandalized during the course of the survey. The total number of traps open over the 30 survey days was 2,979 (=trap-days).

Environmental data collected included the maximum and minimum air temperatures during each trap day, wind speed, cloud cover, and precipitation. Habitat types at each of the traps were noted, and followed the classification system described in Section 2.2, *Plant Communities*. Capture data collected included species name (for reptiles, amphibians, and mammals), age class (hatchling/metamorph, juvenile, adult), and notes (such as mortality or injury).

Visual Encounter Surveys

Visual encounter surveys are focused, timed searches within suitable habitat areas. These surveys included focused searches of suitable refugia and basking sites, such as downed wood, boards, logs, rock and brush piles, and exposed rocks. In addition, aquatic sites on the More Mesa were dip netted for amphibian larvae on March 28, 2008. Visual encounter surveys for ground-active species were conducted mainly between 1000-1230 hours when reptiles are actively basking and foraging. Seven 8-hour visual encounter surveys were conducted between March 28th and August 29th, 2008. Data were collected using a Trimble GPS and included species, age class, and substrate (ground, log, rock, debris, boards, etc.). Incidental observations of amphibians and reptiles during the course of other field work were plotted on aerial photographs for inclusion in this effort. All species locations from the visual encounter surveys, incidental observations, and pitfall trapping results were plotted on aerial photographs (CIRGIS 2004).

Cover Boards

Cover boards were placed in the coastal dune scrub habitat in the southwestern corner of the study site to aid in surveys for reptiles such as the California legless lizard (*Anniella pulchra*). Eight 2' by 4' by ½" pieces of plywood and six 8" by 3' by ½" shelving boards were placed in contact with the ground on April 18, 2008. Boards were numbered and the locations were mapped using a GPS. Cover boards were checked during each of the visual encounter surveys between March 28th and August 29th.

Protocol CRLF Surveys

A Site Assessment following the USFWS (1996) protocol was conducted on March 27th and 28th, 2008 at potentially suitable habitats within the More Mesa and adjacent County properties. The areas included the two mitigation ponds located on the adjacent Flood Control and County parcels ("West Pond" and "East Pond", a drainage on the County property ("East Drainage"), and an area of ponded water in the north-central portion of More Mesa ("Willow Woodland"). The non-breeding season visual surveys were conducted on July 18th and 29th, 2008. The breeding season surveys were conducted beginning March 12th and ending April 16th, 2009. The night surveys were conducted on March 12th, March 19th, April 2nd, and April 21st, 2009. The day surveys were conducted on March 12th and April 2nd, 2009.

3.3.3 RESULTS

Pitfall Trapping

The results of the pitfall trapping, visual encounter, and California red-legged frog surveys at More Mesa confirmed the presence of 2 amphibian and 6 reptile species. Table 3.3-3 lists those species known to occur within the study site during the 2008 – 2009 study. No special-status reptile or amphibian species were observed.

Table 3.3-3 Reptile and Amphibian Species Observed at More Mesa in 2008 – 2009

Order and Family	Common name	Scientific name
Anura		
Hylidae	Northern Pacific treefrog	*Pseudacris* (=*Hyla*) *regilla*
Caudata		
Plethodontidae	Black-bellied slender salamander	*Batrachoseps nigriventris*
Squamata		
Anguidae	Southern alligator lizard	*Elgaria multicarinata*
Colubridae	Common kingsnake	*Lampropeltis getula*
	Gophersnake	*Pituophis catenifer*
	Ring-necked snake	*Diadophis punctatus*
Phrynosomatidae	Common side-blotched lizard	*Uta stansburiana*
	Western fence lizard	*Sceloporus occidentalis*

Other species caught in the traps included house mouse (*Mus musculus*), ornate shrew (*Sorex ornatus*), western harvest mouse (*Reithrodontomys megalotis*), Botta's pocket gopher (*Thomomys bottae*), and a fledgling goldfinch (*Carduelis psaltria*). A summary of total capture data is provided in Table 3.3-4, and a complete list of capture data is provided in Appendix F.

Table 3.3-4 Capture Statistics For More Mesa Pitfall Traps in 2008

Species Type	Minimum Daily Captures	Maximum Daily Captures	Mean Captures per Day all Traps [1]	Mean Captures per Trap-Day [2]
Amphibians and Reptiles	18	101	41.4	0.42
Total All Species	**20**	**102**	**44.8**	**0.45**

[1] *Total of 30 days of open traps*
[2] *Over 2,979 trap-days*

Figure 3.3-2 illustrates the herp captures (in terms of number of herps caught per trap per day) for each sampling day, with a generalized trend line (blue dashed line) to illustrate the change in number captured over the seasons. The number of herp (amphibians and reptiles) captures per trap day peaked during spring and early summer (June), decreased through the summer months, and increased in the fall (September) when hatchling lizards were active and treefrogs were moving overland. An interesting pattern was generally lower capture rates on the second day of trapping during each trapping session, as seen by the "zig zag" pattern of the maroon line in Figure 3.3-2. It is possible this is due to individuals avoiding the traps after being captured on the first day of each trapping session.

Figure 3.3-2 Amphibian and Reptile Captures

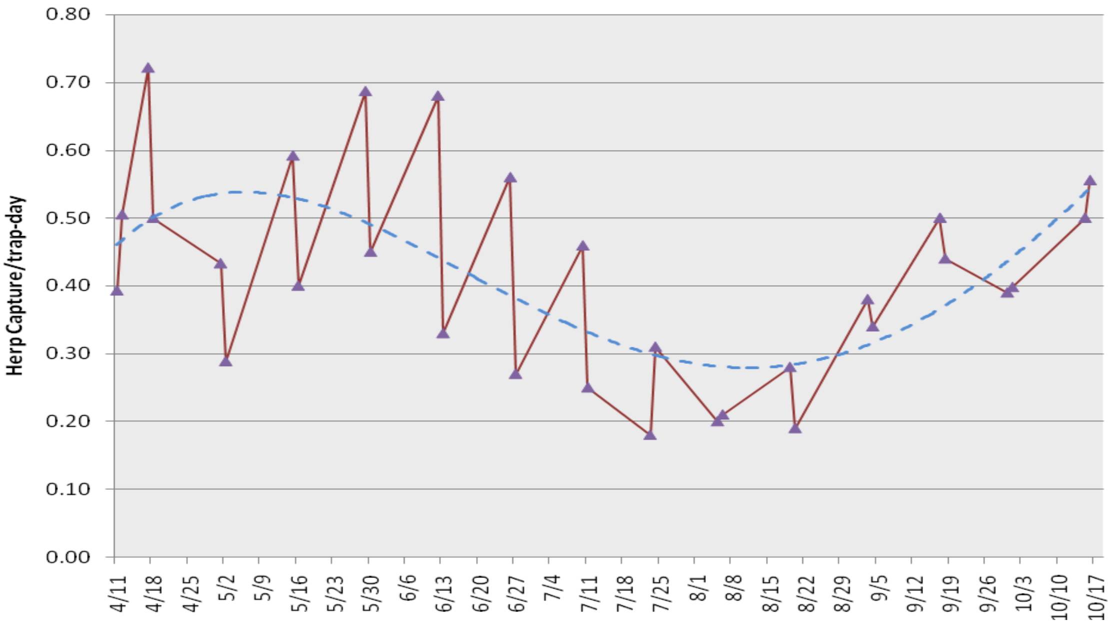


Table 3.3-5 shows the total number of individuals caught by species and age class. Adults were the most common age class captured for each species. Western fence lizards accounted for 81% of the total captures. Common kingsnakes and gophersnakes were rare, with only one capture of each species, but since these individuals were observed climbing out of the buckets when disturbed, their abundance on the site is likely under-represented by this sampling technique. Black-bellied slender salamanders were captured only from April 17th through May 16th, 2008. Northern Pacific treefrog metamorphs and southern alligator lizard hatchlings first appeared in traps on June 12th, western fence lizard hatchlings on July 10th, and common side-blotched lizard hatchlings on July 23, 2008.

Table 3.3-5 Total Number of Individuals Caught in Pitfall Traps By Species and Age Class

Species	Adult	Juvenile	Hatchling/ Metamorph	Total
Black-bellied slender salamander	16	8	1	25
Common kingsnake	1	0	0	1
Common side-blotched lizard	84	45	33	162
Gophersnake	1	0	0	1
Northern Pacific treefrog	14	3	9	26
Ring-necked snake	0	1	0	1
Southern alligator lizard	18	13	2	33
Western fence lizard	677	188	128	993

Table 3.3-6 shows the total number of captures by species and trap line, and the location of trap lines is shown in Figure 3.3-1. Trap line 3 in the coastal dune scrub in the southwestern corner of the study site had the highest abundance of captures, representing 27.6% of total captures. The next highest were trap line 2, also along the coastal bluff, and trap line 5, located in the middle of the western mesa area in primarily annual grassland. The least productive was trap line 8, which was in the oak woodland along the old railroad alignment. These traps were at the edges of a wide trail that is maintained as a gas line. Trap line 10[1] located in the northeast portion of the site had moderate numbers, but only two species, with the vast majority of them being the ubiquitous western fence lizard.

Table 3.3-6 Total Number of Pitfall Captures By Species and Trap Line

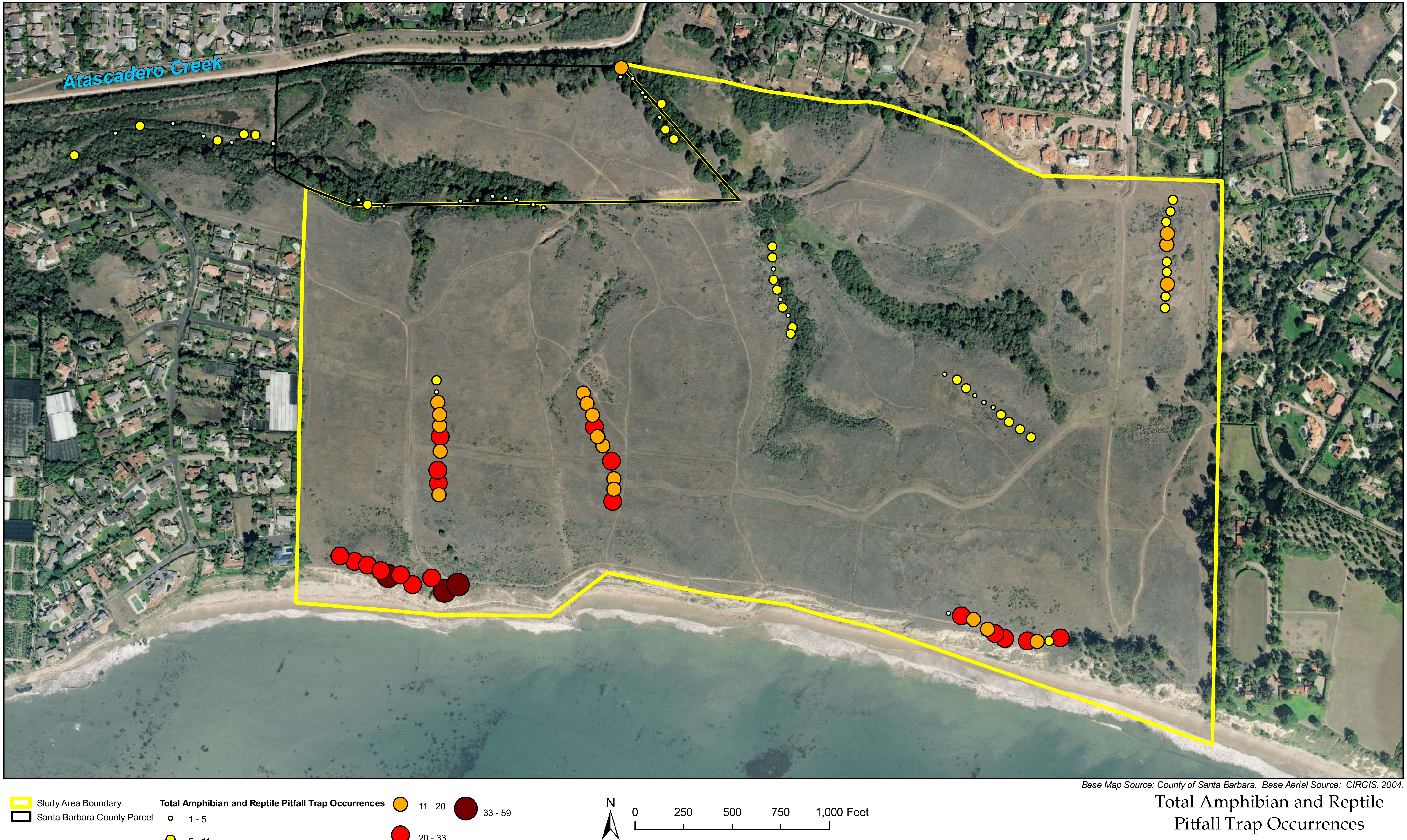
Species	1	2	3	4	5	6	7	8	9	10
Black-bellied slender salamander	0	0	0	0	0	0	23	2	0	0
Common kingsnake	0	0	0	0	0	0	1	0	0	0
Common side-blotched lizard	0	5	146	9	1	0	0	0	0	1
Gophersnake	0	1	1	0	0	0	0	0	0	0
Northern Pacific treefrog	0	0	0	0	0	0	8	4	14	0
Ring-necked snake	0	0	0	0	0	0	0	0	1	0
Southern alligator lizard	6	5	6	4	3	1	0	2	2	4
Western fence lizard	57	170	190	142	184	68	22	16	33	111
Total	**63**	**181**	**343**	**155**	**188**	**69**	**54**	**24**	**50**	**116**

Amphibians were captured only in the woodland areas near Atascadero Creek, with the black-bellied slender salamanders captured only along lines 7 and 8, and treefrogs on lines 7, 8, and 9. These lines also had the lowest numbers of individuals caught. Figure 3.3-3 illustrates the location of total amphibians and reptiles caught in the pitfall traps and during visual and incidental observations, except for western fence lizard. Figure 3.3-4 highlights amphibian observations and Figure 3.3-5 highlights reptile observations on the study area. Trap lines 2, 7, and 9 had the highest diversity, with 4 species captured in each line. Trap line 2 was probably the most highly used by recreational visitors, and also received the highest degree of vandalism and other disturbance. Since several traps were removed by vandals, this line may actually have greater abundance than indicated.

Most side-blotched lizard captures (90%) occurred on line 3 in the coastal dune scrub; however, later in the season hatchlings and juveniles may have been dispersing away from the bluff areas as they were captured on line 4, which is situated landward from the coast. These lizards were found in an area of friable soils and where coyote brush was dying or infected with beetles (see Figure 2.4-1), which potentially where providing a food source. This abundant species prefers sandy areas, though it also occurs on rock, hardpan, or loamy areas. Even though these lizards have a somewhat limited distribution within the site, they were the second most common herp species (13% of total captured). Western fence lizards were the most abundant and ubiquitous of lizards at the site, occurring throughout the site (Figure 3.3-6) and comprising 80% of all captures. Figure 3.3-6 also illustrates that while the western fence lizard occurs throughout the site, it is most common in the southern portion of the site along lines 2, 3, 4, and 5.

Table 3.3-7 shows the number of captures by species in each of the habitat types, which were determined in the vicinity of each trap. The total number of captures was greatest in grassland habitats, but this was due to the number of traps in these habitats. While 37% of the traps were in the combined grassland habitats (California annual grassland and introduced perennial grassland), 41% of the captures occurred in these habitats. Scrub habitats (coyote brush and coastal dune scrub) had only 27% of the traps, but represented 44% of the captures. The highest capture rate for any habitat type (total number of captures per trap) was in coastal dune scrub, due to the large number of side-blotched lizards captured in this habitat. Annual grassland had the next largest capture rate, with the capture rate in introduced perennial grassland similar to that in coyote brush stands. Capture rates

[1] *Note: in the data tables, Line 10 includes traps 001 – 010.*

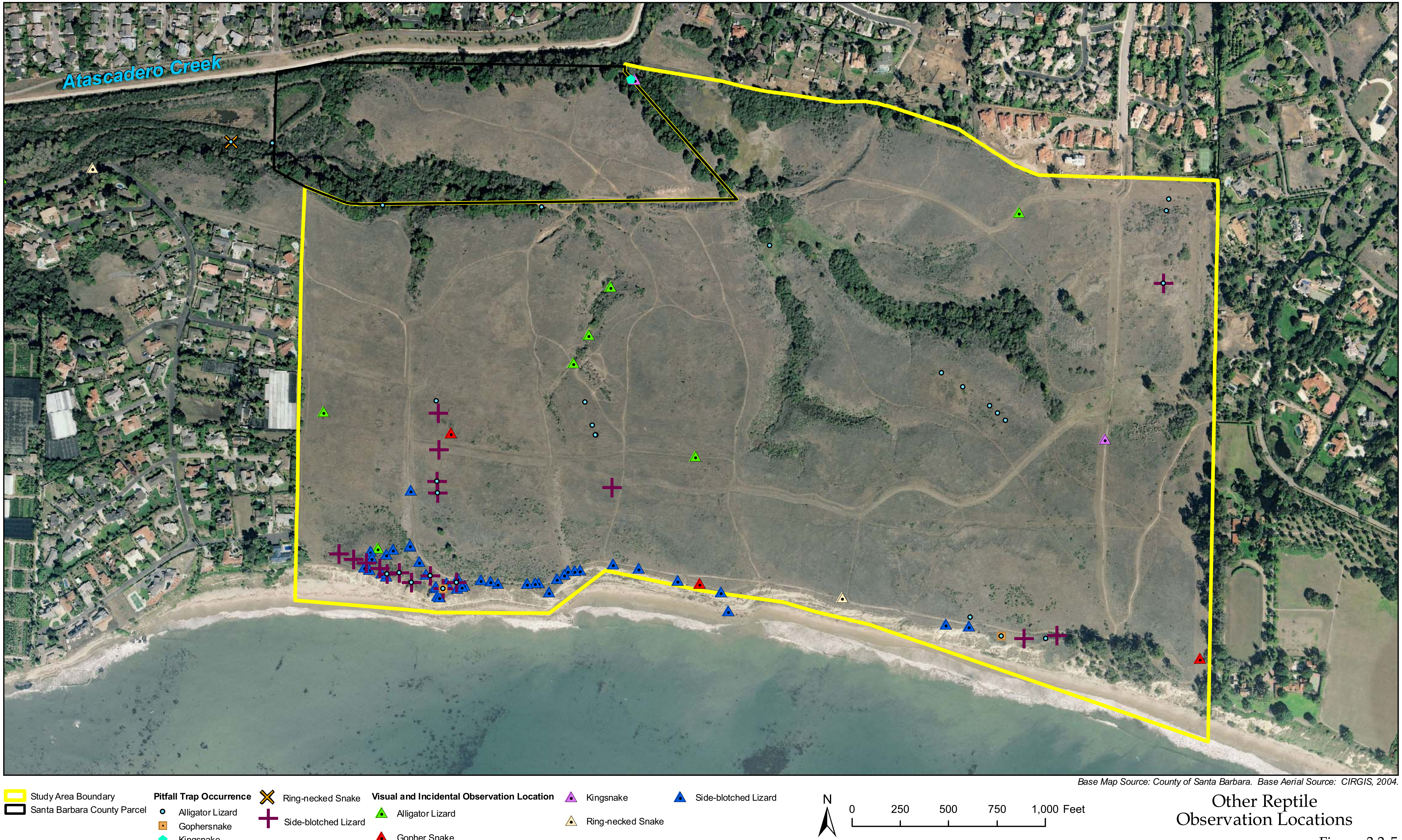


Total Amphibian and Reptile
Pitfall Trap Occurrences

Figure 3.3-3

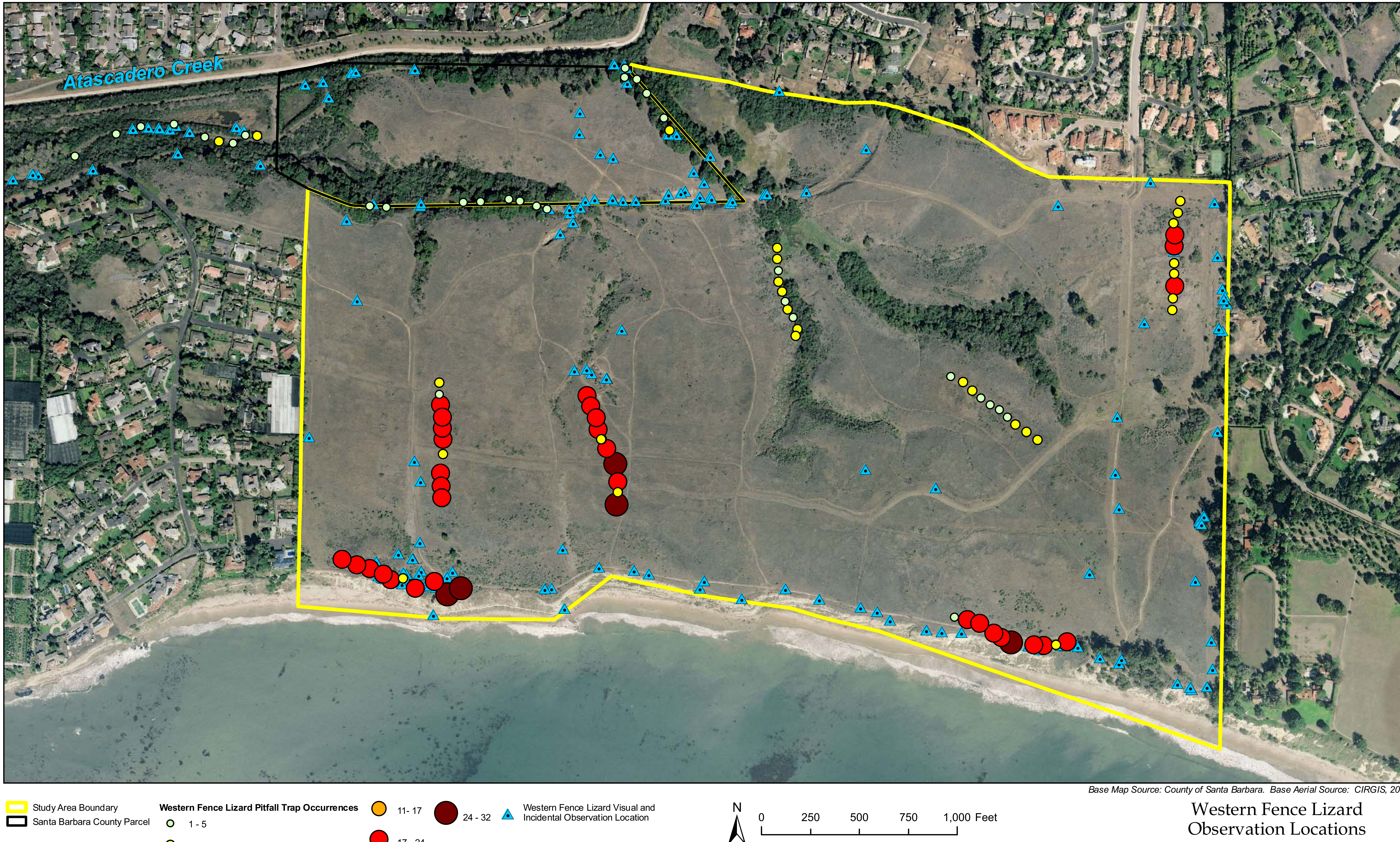
Amphibian Observation Locations

Figure 3.3-4



Other Reptile Observation Locations

Figure 3.3-5



Western Fence Lizard Observation Locations

Figure 3.3-6

were lowest in coast live oak woodland and riparian, but these are the only locations captured amphibians, which accounted for only 4% of total captures in this study. Habitats classified as ruderal were along line 10 (3 traps) where there was a predominance of weedy plant species such as wild radish. Western fence lizards were the only species caught in those three traps.

Table 3.3-7 Pitfall Captures By Species and Habitat Type1

Species	CAG	IPG	CB	CDS	RI	RU	CLO
Black-bellied slender salamander	0	0	0	0	1	0	24
Common kingsnake	0	0	0	0	0	0	1
Common side-blotched lizard	4	9	3	146	0	0	0
Gophersnake	0	0	1	1	0	0	0
Northern Pacific treefrog	0	0	0	0	21	0	5
Ring-necked snake	0	0	0	0	1	0	0
Southern alligator lizard	4	7	11	6	3	0	2
Western fence lizard	261	230	194	190	55	30	33
Total Captures	269	246	209	343	81	30	65
Total Traps	15	22	17	10	14	3	19
Total Captures Per Trap	**17.9**	**11.2**	**12.3**	**34.3**	**5.8**	**10.0**	**3.4**

[1]Habitat types: CAG = California annual grassland, IPG = Introduced perennial grassland, CB = coyote brush, CDS = coastal dune scrub, RI = riparian, RU = ruderal, CLO = coast live oak

Visual Encounter Surveys and Cover Boards

Coverboards were placed along line 3 in an attempt to confirm the presence of legless lizard per the 1995 collection. However, no amphibian or reptile species were observed under the coverboards. The observations of amphibian and reptile species from the visual encounter surveys, incidental observations, and pitfall trapping are shown in Figures 3.3-4 and 3.3-5. The most abundant and widespread species detected was the western fence lizard (Figure 3.3-6). Side-blotched lizards were abundant in the coastal bluff area, and individuals were found on the beach. A few scattered common side-blotched lizards were found away from the bluff. Tadpoles of the northern Pacific treefrog were found in seasonal pools throughout the study site, but with the exception of the pool in the central drainage at the trail crossing and aquatic sites on the County property, each of these sites dried up before the tadpoles could reach metamorphosis. Black-bellied slender salamanders were found only in oak woodland areas in the northern part of the study site. Visual encounter survey data are included in Appendix F.

Protocol CRLF Surveys

During the focused protocol surveys for California red-legged frog (CRLF), no new species were observed and no CRLF were observed. Northern Pacific treefrog metamorphs were present at the West Pond and the East Drainage during the non-breeding season surveys. The East Pond and Willow Woodland were dry during the non-breeding season surveys, and thus were not surveyed.

The East Pond and East Drainage were dry throughout the focused breeding season surveys. The Willow Woodland maintained standing water less than six inches deep throughout the breeding season surveys. Northern Pacific treefrog tadpoles were observed at the Willow Woodland during two breeding season surveys, a day and night survey conducted on April 2, 2009. Up to fifty tadpoles less than 1.5 cm in length were observed. The West Pond also retained water throughout the breeding season surveys. Only northern Pacific treefrogs were observed in the West Pond, and at least one-hundred northern Pacific treefrogs were seen and heard on each survey night during the breeding season. Tadpoles were also only seen on April 2, 2009 at the West Pond, and no more than 20 tadpoles less than 3 centimeters total length were seen.

3.3.4 COMPARISON WITH THE 1982 STUDY

The UCSB (1982) study listed 22 species that were expected to occur on-site. Since only 11 of these were observed in that study, UCSB (1982) stated that it appeared that the reduced amphibian and reptile fauna found onsite was an indication of severe habitat damage that occurred in the past, and that the site has since apparently undergone natural recovery. The rationale for this notion is that eight of the 11 species observed on-site are considered to be good colonists, and only three of the "poor colonists" on the list of expected species were found on-site. The UCSB (1982; page 187) study stated that "amphibian and reptile fauna of More Mesa is a depauperate sample of the typical species composition of a coastal mesa in southern California."

Comparison of the distribution maps provided in UCSB (1982) and those generated by the present study (Figures 3.3-3 through 3.3-6) show an increase in the amount of area on-site occupied by the common side-blotched lizard and a slight increase by the southern alligator lizard. While UCSB (1982) reported only a small population of common side-blotched lizards from a rocky point below the More Mesa cliff (none were caught in pitfall traps), the present study determined that this species was very abundant in the coastal dune scrub habitat (135 pitfall trap captures) and its distribution extended along the upper bluff area as well as areas adjacent to the bluff. Gophersnakes and common kingsnakes apparently had slightly lower numbers of observations the present study than reported in UCSB (1982). Each of the other species on the study site occupied similar areas as reported in UCSB (1982) and in the present study. A direct comparison of capture rates cannot be made between the UCSB (1982) study and the present study. In the 1982 study, the traps were left open continuously and checked on three week intervals. Current regulations precluded following this checking interval due to anticipated mortality. In addition, the trapping periods differed between the two studies. In 1982, trapping began in September and continued over the winter until May. During the present study, trapping was conducted from April until October. This difference in timing, as well as seasonal rainfall amounts, likely influenced the detection of amphibian species such as the northern Pacific treefrog.

It is important to note that the county mitigation ponds were not created at the time of the UCSB (1982) study, but wetland habitat associated with overflow areas of Atascadero Creek was present in this area. Western toads and the American bullfrog (a non-native species) were found on the county property and in Atascadero Creek in 1982, but were not detected during the present study. Southern Pacific pond turtles are reported as having been seen in Atascadero Creek and the county property from 1977 through 1979. The turtle was not detected during the UCSB (1982) study, and the report states that the prior observations probably did not constitute a breeding population. It is not known whether the creation of the mitigation ponds could have negatively influenced these species; the West Pond provides potentially suitable habitat for the southern Pacific pond turtle and the American bullfrog. The shallow edge of the West Pond has potentially suitable breeding habitat for the western toad. One factor may be the regular maintenance of Atascadero Creek that commenced in 1994, in which emergent wetland vegetation is cleared from the channel on a regular basis. These activities may have negatively affected amphibian and reptile populations in the creek, which in turn reduced or eliminated the numbers of these individuals in surrounding areas.

3.3.5 DISCUSSION

No federal, state or local special-status species of reptile or amphibian were detected during the present study. The California red-legged frog was reported from the West Pond by LSA Associates, Inc. (1997), but this species was not detected during a full series of protocol surveys during the present study nor was it reported by UCSB (1982). Survey efforts (coverboards and visual encounter searches) did not rediscover the sensitive species California legless lizard previously recorded in 1995 in the southwest bluff portion of the site. Due to the lack of special-status amphibian and reptile species on the site, environmental sensitivity for herpetofauna would be considered to be low.

The UCSB (1982) study hypothesized that should More Mesa remain undeveloped, the recolonization of the herpetofauna at the site would be very slow and would likely not see the return of then extirpated species. No new species were found during the present study that were not detected in 1982. Capture rates of common species, the western fence lizard and the common side-blotched lizard, were high during the present study. The common side-blotched lizard has apparently expanded the area it occupies on-site. The low diversity of amphibian and reptile species onsite would contribute to low environmental sensitivity for herpetofauna. However, the high abundance of lizards represents a substantial prey base and a vital link in the flow of nutrients from invertebrates to higher levels. Overall, environmental sensitivity of the site for herpetofauna would be considered to be moderately low.

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SECTION 4 – INVERTEBRATES

A limited number of special-status invertebrates have been identified to occur within Santa Barbara County, primarily butterflies and fairy shrimps. Several species that were considered to have a low potential to utilize the site, but are of special interest to local agencies, were specifically searched for during study efforts. The objective of the invertebrate studies was to determine whether special-status species or suitable habitat for these species occurs on the site. This data is intended to be evaluated in the habitat sensitivity analysis as one of the parameters concerning the extent and nature of Environmentally Sensitive Habitat at the site. Previous biological studies of More Mesa have not included surveys for these species and, thus, cannot be compared with current study results.

4.1 VERNAL POOL FAIRY SHRIMP (BRANCHIOPODS)

4.1.1 INTRODUCTION

A persistent, relatively large vernal pool is known to be located in the southeastern corner of the site based on several past studies of More Mesa. Given the consistent documentation of this pool and several other seasonal pools within the site, Listed Vernal Pool Branchiopods (LVPB) were considered to have the potential to be found onsite. Two LVPB that are known from the South-Central coast of California (Ventura to San Luis Obispo Counties) are the Vernal Pool Fairy Shrimp (*Branchinecta lynchi*) and the Riverside Fairy Shrimp (*Streptocephalus woottoni*). Other LVPB are not anticipated to be onsite based on their known ranges and thus are not discussed further; however, this does not preclude them from survey results and reporting if identified. The purpose of this study was to assess the presence of LVPB within the onsite vernal pool and other potentially ponded areas using U.S. Fish and Wildlife Service (USFWS) protocol wet-season surveys (USFWS, 1996). This study employed the latest methods and technology to examine LVPB at the site.

LVPB Description, Range, and Habitat Requirements

LVPB are federally listed freshwater invertebrates endemic to California vernal pools. All LVPB are short lived (< 150 days) and fast reproducers (20-60 days), and can complete their life cycle in about 20 days under optimal conditions to 40 days under less favorable conditions, depending on the species. During the dry season, LVPB embryos are contained in a protective impenetrable shell called a cyst. Cysts may remain viable in the soil for at least 15 years and often for much longer. Following winter/spring rains and the inundation of vernal pools, embryos hatch from the cysts and enter the water column, to mature, reproduce and complete their life cycle (Eriksen and Belk, 1999).

LVPB are endemic to vernal pools in the Central Valley, northern and southern Coast Ranges, southwestern coastal California, extreme northwestern Baja California, and a limited number of sites in the Transverse Range and Santa Rosa Plateau of California (USFWS 1993, 1994, and 1997; Eriksen and Belk 1999; CNDDB 2006). Vernal pools are defined by Zedler and Keely (1998) as “precipitation-filled seasonal wetlands inundated during periods when temperature is sufficient for plant growth, followed by a brief waterlogged-terrestrial stage and culminating in extreme desiccating soil conditions of extended duration.” Many LVPB are also found in sandstone or basalt-flow depression basins, and small swale and earth slumps, with a grassy or, occasionally, muddy bottom in grassland (Eriksen and Belk 1999).

The following provides a more detailed description of the habitat and range requirements for the two species that were the focus of this investigation for the More Mesa.

Vernal Pool Fairy Shrimp (VPFS, Branchinecta lynchi)

B. lynchi is listed as federally threatened by the USFWS and have been observed in a variety of vernal pools from December to early May in the Central Valley of California to the central and southern Coast Ranges, from Solano County to Ventura County, California (USFWS, 1994). They are also found in disjunct populations in the South Coast Mountains Region in a wide variety of habitats. *B. lynchi* typically occur in vernal, seasonal, or ephemeral pools from December to May. Vernal pool habitats occupied by VPFS are variable; however, most are found in grass or mud bottom swales, or basalt flow depression pools in unplowed grasslands. Other VPFS suitable habitats include sandstone rock outcrops and alkaline vernal pools (USFWS, 1994). The one characteristic the pools have in common is that they contain cool water (4.5 – 23ºC), and are less predictable and short-lived than vernal pools with a larger watershed found in more mesic environments (Eriksen and Belk, 1999 and USFWS, 2004). In addition, the water temperature within a pool must drop below 10º C before a VPFS nauplius (juvenile fairy shrimp) will hatch from a dormant cyst (an encapsulated egg) (Helm 1998). Habitats include type locality sandstone outcrops in Contra Costa and Santa Barbara Counties, but the more typical habitat is small swales, earth slumps, or basalt-flow depression basins with a grassy or muddy bottom (Eriksen and Belk, 1999). VPFS inhabit vernal pools that vary in size from 0.56 m^2 (1.84 ft^2) to over 10 ha (24.7 acres) and have low to moderate total dissolved solids (TDS) and alkalinity, and neutral pH. VPFS mature rapidly and can reach reproductive age in 18 days under optimal conditions, however, 41 days is more common. VPFS are the shortest lived fairy shrimp, with a maximum lifespan of 139 days (mean = 90 days) (Eriksen and Belk, 1999).

Riverside Fairy Shrimp (Streptocephalus woottoni)

S. woottoni is listed as federally endangered by the USFWS and occurs in large, long-lived vernal pools in Orange, San Diego, and Riverside Counties (USFWS, 1993). One occurrence has also been identified in Ventura County in the Tierra Rejada Valley (Simi 7.5 min quad). It has the most restricted range of any fairy shrimp, occurring on coastal terraces just south of the California-Mexico international border north to Orange [Ventura] County and in select areas within Riverside County within grassland, chaparral, and coastal sage scrub habitats. It prefers warm-watered pools with low to moderate dissolved solids. Vernal pools occupied by *S. woottoni* are usually seasonally astatic and are inundated in a less predictable manner. Typically these vernal pools are warm-watered, have a mean inundation of greater than 12 inches (in.), and have been observed from December to June. *S. woottoni* mature within 48-56 days and can survive for 120 days (maximum of 150 days) (Eriksen and Belk, 1999). Because of the astatic conditions of vernal pools in southern California, cysts of the RFS may not respond to the first, second, or third wetting of the soil. They may also have the lowest cyst germination rate for anostracans. Even after the third wetting, only 2.8% germinated under laboratory conditions (Simovich and Hathway, 1997). The *S. woottoni* coexist with *B. lynchi* at Skunk Hollow in Riverside County. The potential for *S. woottoni* to occur on-site is low; however, Santa Barbara County vernal pools have not had extensive surveys for fairy shrimp as has the rest of Southern-Central California, especially those areas subject to rapid growth and development.

4.1.2 METHODOLOGY

Studies of LVPB included two components: 1) habitat assessment for LVPB's and 2) USFWS protocol wet-season surveys. The USFWS protocol wet-season surveys (USFWS, 1996) were conducted by fairy shrimp permittee and principal ecologist John H. Davis IV of QBS in the Winter – Spring of 2008-2009. All surveys followed 1996 permit guidelines and recovery permit conditions.

Habitat Assessment

The first phase in surveying for LVPB is to determine habitat suitability. A field visit was conducted on June 13, 2008, to the More Mesa property to determine habitat suitability for LVPB, while a previous field visit occurred on February 21, 2008 during the proposal preparation for the LVPB survey tasks. The vernal pool and other ponded areas (i.e. seasonal pools) identified in *A Biological Evaluation of More Mesa* (UCSB, 1982) were revisited and, if they were in similar condition (i.e. have potential to retain precipitation), they were hand mapped on an aerial photograph of the property. Additional seasonal pools identified in the field were also mapped. The data was then matched to a draft wetland delineation map of the site. The approximate length, width, area, and depth of the basins were recorded and the approximate boundaries were mapped onto a site-specific aerial photograph using a Trimble GTX Global Positional System (GPS). A third field visit was conducted on November 2, 2008 after the region's first rain event to investigate the pools for inundation. Approximately 0.5 inch of rain fell over a two day period. No significant ponding (i.e. greater than 1.2 in.) was present in the vernal pool or seasonal pools, however, one road puddle inundated to 2.0 in.

Agency Coordination

Mr. Davis IV initiated coordination with USFWS, Ventura Field Office, biologist Ms. Julie Vanderwier on October 31, 2008. Following the November 2, 2008 field visit, Mr. Davis IV submitted photos documenting vernal and seasonal pool conditions to Ms. Vanderwier via email on November 3, 2008. Figures included within this report were also sent in successive emails. Based on the habitat assessment (QBS, 2008) and conversations with USFWS biologist Julie Vanderwier (October – November 2009), Mr. Davis IV requested authorization on November 6, 2009 from the USFWS, Ventura Fish and Wildlife Office, to initiate surveys on the property. Authorization was granted by USFWS on November 18, 2008 (TAILS No. 81440-2009-B-0046) via email.

U.S. Fish and Wildlife Protocol Surveys

USFWS protocol guidelines for determining the presence or absence of LVPB within an inundated depression require two series of surveys to be performed (USFWS, 1996). The possible approaches outlined in the guidelines are two wet-season surveys within a five-year period or wet-season surveys directly followed by a dry-season survey and cyst identification. To satisfy the first of the two survey types required in the guidelines, wet-season surveys were performed for the on-site vernal pool (VP) and seasonal pools 1 through 10 (SP 1-10) between November 27, 2008 and April 25, 2009. The wet-season surveys for LVPB were conducted by Mr. Davis IV under the USFWS recovery permit TE-110095-0. The permit covers all activities as they relate to protocol wet-season surveys within the State of California. The methods for the wet season survey are discussed below.

Wet-Season Surveys

USFWS protocol wet-season surveys for LVPB require a series of formal surveys to be performed once topographical depressions are inundated with at least 1.2 in (3.0 centimeters) of water. Wet season surveys for LVPB were conducted every two weeks throughout the rain season (up to 120 days) following initial inundation of the pools to satisfy protocol requirements. The surveys included visually inspecting the pools for branchiopods and dipping a 12.0 inch wide fine mesh net (i.e. swimming pool net) or brine shrimp net into the pool at a series of locations and moving it through the entire water column to collect vernal pool fauna. Contents of the net were placed into a Petri dish partially filled with water and inspected for branchiopods and other vernal pool fauna. Following inspection of all vernal pool fauna, contents were placed back into the pool. Genera of observed vernal pool fauna were recorded on a USFWS LVPB protocol wet season survey sheet. All areas of the pools were thoroughly examined to determine whether LVPB were present.

Physical data was also collected during each survey effort and was recorded onto the USFWS wet season survey data sheets. Maximum surface area of each pool was initially measured by walking the perimeter of seasonal pool habitat using a Trimble® GeoXT Global Positioning System (GPS) unit, capable of sub-meter (approximately three feet) accuracy. Additional surface area measurements were performed by counting the paces it took to traverse around each pool and multiplying by a mean pace length to obtain an approximate surface area for the pools and/or approximating the proportion of the maximum surface area filled during the survey. Water and air temperature were measured using a field thermometer and maximum pool depth was measured with a metric ruler. In addition, geographic information, land use, and habitat type were recorded.

4.1.3 RESULTS

Habitat Assessment

LVPB habitat is considered potentially present if the following conditions are met: 1) it forms a basin or low area with defined changes in vegetation from hydrophytic (adapted to frequent saturated conditions) to upland (cannot survive saturation); 2) the area has the ability to support seasonal water at a depth of 1.2 in (3.0 centimeters) or greater for more than 45 days under optimal conditions, 3) the top soil of the depression is not frequently and/or excessively disturbed, 4) the soil type is clay, clay loam, clay silty loam, or has a shallow underlying clay or hardpan layer; and, 5) known occurrences of LVPB are documented within the vicinity of the vernal/seasonal pools. Refer to Figure 1-8 *Soils Map* in Section 1 - *Introduction*, for the location of various soil types onsite.

One vernal pool and ten seasonal pools were observed on the property during the August 2008 LVPB habitat assessment and February 2008 proposal site visit. Standing water was present in the pools that were examined in the February 2008 site visit. All pools have potential to support LVPB, especially the federally threatened *B. lynchi* and federally endangered *S. woottoni*. Essentially, these pools retain standing water directly after substantial rain events; they support hydrophytic vegetation, and have a clay or loam soils substrate. In addition, *B. lynchi* is known to occur in small numbers throughout similar habitat in Central and Southern California coastal Counties (San Luis Obispo, Santa Barbara, Ventura, Los Angeles, Orange, and San Diego). Recent discoveries of *B. lynchi* in northern Santa Barbara County (County) have provided reasonable cause that this species probably occurs in other parts of the County that have not been thoroughly investigated. Wild bird migrations and past cattle management serve as probable distribution vectors for dormant fairy shrimp (cysts) in much of California. The study site has been utilized by these rangeland managed species. The traditional, but altered vernal pool in the southeastern corner of the property also increases the potential for LVPB since it has rare vernal pool plant species typical of historic vernal pools that also contain unique fauna including fairy shrimp. A summary of vernal and seasonal pools measurements, soils type(s), and plant community(ies) are presented in Table 4.1-1. A brief summary of literature and assessment findings for the pools is discussed below. Figure 4.1-1 displays the location and mapped areas of suitable habitat for LVPB.

Wet-season Survey Results

No LVPB were observed within the VP or SP 1-10 during wet-season surveys. Seasonal pools 1, 4, and 6 were inundated for approximately 56 days and supported freshwater invertebrates common to vernal pools. Representative invertebrates observed were Ostracods (seed shrimp), Cladocerans (water fleas), Corixidae (water boatman), Hydrophilidae (water scavenger beetles), mayfly nymphs (Order Ephemeroptera), midges, and copepods. Eggs and tadpoles of one amphibian species, the Northern Pacific tree frog (*Pseudacris regilla*), were also common in these pools. Several small in-road puddles that were not identified in the habitat assessment were observed after heavy rains and monitored during wet-season surveys. These low areas in compact portions of the road were inundated quickly during rain events, however, their basins are shallow (<3.1 in.) and dried within two weeks following precipitation. Nine storm (or rain) events occurred in the 2008-2009 rain year and approximately 10.16 inches of total precipitation occurred between November 1, 2008 and May 31, 2009. Neither the VP, SP 1-10, or in-road puddles reached maximum inundation in the 2008-2009 rain year. The VP and SP 2-3, 5, and 7-10, and the road puddles did not fill or contain precipitation for greater than 14 days and therefore, wet-season surveys are considered inconclusive for these pools. SP 1, 4, and 6 were inundated following the January 24 to 28 rain event. Descriptions and survey results for the VP, SP 1-10, and rain puddles are described in detail below.

Table 4.1-1 Summary of Potential LVPB Habitat at More Mesa

Pool Type	Maximum Pool Area	Maximum Depth	Soil Type*[1]	Plant Community *[2]
Vernal Pool (VP)	0.24 ac	12.5 in	Diablo Clay/ Baywood Loamy Sand	• Spikerush series • Harding grass series
Seasonal Pool (SP) 1	0.12 ac	8.6 in	Diablo Clay	• Spikerush series • Harding grass series
SP 2	0.06 ac	7.1 in	Diablo Clay	• Harding grass series
SP 3	0.06 ac	7.9 in	Diablo Clay	• Spikerush series • Harding grass series
SP 4	0.02 ac	6.3 in	Diablo Clay	• California annual grassland
SP 5	0.25 ac	12.5 in	Diablo Clay/ Conception Fine Sandy Loam	• Spikerush series
SP 6	0.09 ac	7.9 in	Conception Fine Sandy Loam	• Spikerush series • Harding grass series • California annual grasslands
SP 7	0.04 ac	7.9 in	Conception Fine Sandy Loam	• California annual grasslands
SP 8	0.10 ac	11.0 in	Conception Fine Sandy Loam	• Spikerush series • Harding grass series • California annual grasslands
SP 9	0.07 ac	7.9 in	Conception Fine Sandy Loam	• Spikerush series
SP 10	0.12 ac	11.0 in	Conception Fine Sandy Loam	• Spikerush series

*[1] *Based on map interpretation of the Santa Barbara County Soils Map (2004).*
*[2] *Refer to Section2.0, Vegetation and Habitats, Figures 2.11 Plant Community Map and 2.31 Wetland Delineation*

Vernal Pool

Farren et al (1982) noted that "a large vernal pool exists on the heavy clay soil on the southern part of the southwest section of the East Mesa." This was the only traditional vernal pool observed on the property. It covers approximately 0.239 acres when fully inundated and has an approximate maximum depth of 12.6 in. (Table 4.1-1). As indicated by Farren, the underlying soils are heavy clay, specifically Diablo Clay, which is characterized by a dark gray clay layer 37 in thick (Refer to Figure 1-8 in Section I, *Introduction*). The soil formed in soft shale and mudstone and although it is considered well-drained, it contains a large amount of clay throughout the profile and is known to support pooling in Santa Barbara and San Luis Obispo Counties (personal observation). Besides the necessary seasonal inundation, a "traditional" vernal pool is usually characterized by its flora. Farren reported four endemic vernal pool plant species in the More Mesa vernal pool: Hoover's button celery (*Eryngium aristulatum* var. *hooveri*), Pacific foxtail (*Alopecurus saccatus*), Lemmon's canary grass (*Phalaris lemmonii*), coast allocarya (i.e. popcorn flower; *Plagiobothrys undulatus*). Recent floristic surveys specifically searched for each of these species. Pacific foxtail, coyote thistle, and coast allocarya were observed during the 2008/2009 survey effort growing in vernal pool habitat in the southeastern corner of the study area. Hoover's button celery and Lemmon's canary grass were searched for, but not observed.

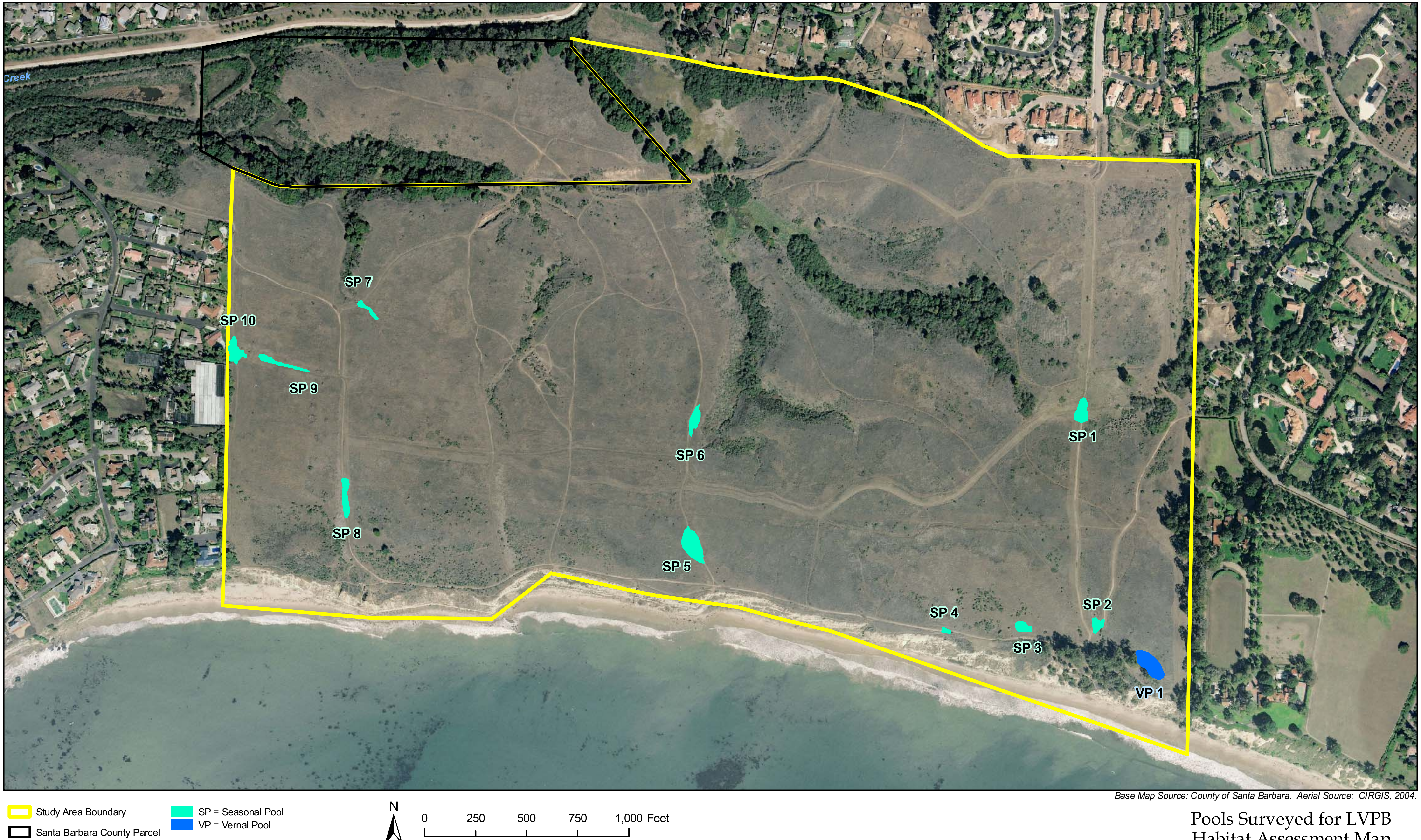
The vernal pool is located within spikerush and introduced perennial grassland vegetation series (Refer to Figure 2.1-1 Plant Communities in Section II, *Vegetation and Habitats*). The pool is bordered on the south by eucalyptus trees. Based on soils, flora, and documented fairy shrimp occurrences in Santa Barbara and neighboring counties, this vernal pool is likely to support LVPB.

During the 2008/2009 survey period the VP was not inundated for a sufficient amount of time, nor was air temperature cool enough at the time of inundation to meet the hatching requirements for the vernal pool fairy shrimp or Riverside fairy shrimp. Water temperature was not measured during the 10 days that the VP was inundated. Approximate surface area was 10.7 ft^2 and maximum depth was 1.2 inch near the northern portion of the pool. No invertebrate or other aquatic organisms were observed during this time.

Seasonal Pools

Ten seasonal pools were identified during the habitat assessment to have potential to support LVPB (Table 4.1-1). These pools varied in size, shape, and location (Figure 4.1-1). Three are in-drainage depressions, four are in-road depressions, and three are depressional areas that are situated next to dirt roads and likely caused by passed ranching or motor-vehicle disturbances. Underlying soils are primary Diablo Clay and Conception Fine Sandy Loam, 2 to 9 Percent Slopes. Conception Fine Sandy Loam is a moderately drained soil, but has a dense clay subsoil in certain areas. Besides the in-road pools, the plant communities are the Spikerush Series, California Annual Grassland, and Introduced Perennial Grassland. In-road pools are typically bare and void of vegetation. Inundation was observed in these seasonal pools during the February field visit (Figure 4.1-2, Photo 2). These ten seasonal pools were considered to have potential to support LVPB.

SP 1, 4, and 6 were inundated for approximately 56 days and supported several aquatic invertebrate species and Northern Pacific tree frog (aka Pacific chorus frog) egg and tadpoles (Table 4.1-2). Although other invertebrates were present in the water column, unseasonably warm weather during inundation likely kept these pools at a temperature not suitable for LVPB cyst hatching. SP 2, 3, 5, 7, and 8 were inundated less than 10 days on two occasions. No inundation was observed in SP 9 or 10.



Pools Surveyed for LVPB
Habitat Assessment Map
Figure 4.1-1

Table 4.1-2 Wet Season Survey Dates and Findings

Survey Number	Date	Days Since Inundation	Surface Area: Max Pool Depth	Water Temp: Air Temp	Fairy Shrimp Species Observed*1	Other Invertebrates or Other Wildlife Observed
0	11/08/09	3	**VP:** No standing water **SP 1-10:** No standing water **RP3:** 108 ft^2 : 1.9 in	**RP 2:** NM : 22.5°C	None Observed	None observed
1	11/15/09	0	No standing water	NA : 29.0°C	None Observed	None observed
2	12/01/09	4 days	**SP 1** 86 ft^2:3.3 in **SP 4** 53 ft^2 : 2.8 in **SP 6**:140 ft^2 : 7.9 in **RP3:** 215 ft^2 : 4.9 in	**SP 1** 18.5 °C: 19.0 °C **SP 4** 20.0 °C: 20.0 °C **SP 6** 18.8 °C: 19.6°C **RP 3:** 21.0°C: 19.3 °C	None Observed	None observed
3	12/14/09	0 day	No standing water	NA: 13.5 °C	None Observed	None observed
4	12/28/09	0 day	No standing water	NA: 15.5 °C	None Observed	None observed
5	01/25/09	1 day	**SP 1** 538 ft^2: 4.7 in **SP 4** 140 ft^2 : 5.2 in **SP 6**: 807 ft^2 : 7.7 in	**SP 1** 18.2 °C: 15.5 °C **SP 5** 19.3 °C: 16.2 °C **SP 6** 19.5 °C: 16.7°C	None Observed	None observed
6	02/08/09	14 days	**SP 1** 861 ft^2: 5.7 in **SP 4** 538 ft^2 : 6.3 in **SP 6**:1937 ft^2 : 10.2 in	**SP 1** 17.9 °C: 15.0 °C **SP 4** 19.9 °C: 15.8 °C **SP 6** 19.7 °C: 16.1 °C	None Observed	Ostracods (seed shrimp), Cladocerans (water fleas), Corixidae (water boatman), Hydrophilidae (water scavenger beetles), midges, and copepods. *Psuedacris regilla* eggs
7	02/23/09	28 days	**SP 1**: 1184 ft^2 : 6.3 in **SP 4**: 290 ft^2 :6.0 in **SP 6**:14000 ft^2 :9.8 in	**SP 1** 18.8 °C : 17.7 °C **SP 4** 20.8 °C: 17.8 °C **SP 6** 19.8 °C: 19.6 °C	None Observed	Ostracods (seed shrimp), Cladocerans (water fleas), Corixidae (water boatman), Hydrophilidae (water scavenger beetles), midges, and copepods. *Psuedacris regilla* eggs and tadpoles.
8	03/08/09	42 days	**SP 1**: 807 ft^2 : 5.3 in **SP 4**: 118 ft^2 :4.8 in **SP 6**: 914 ft^2 : 9.4 in	**SP 1** 20.1 °C : 17.8 °C **SP 4** 20.5 °C: 18.1 °C **SP 6** 18.4 °C: 18.4 °C	None Observed	Ostracods (seed shrimp), Cladocerans (water fleas), Corixidae (water boatman), Hydrophilidae (water scavenger beetles), midges, mayfly nymphs, and copepods. *Psuedacris regilla* eggs and tadpoles.
9	03/21/09	56 days	**SP 1**: dry, soil moist **SP 4**: <11 ft^2 :< 0.04 in **SP 6**:140 ft^2 : 7.9 in	**SP 1** NM : 17.0 °C **SP 4** 18.0 °C: 16.8 °C **SP 6** 13.5 °C: 11.3 °C	None Observed	**SP 6:** Ostracods (seed shrimp), Cladocerans (water fleas), Hydrophilidae (water scavenger beetles), and mayfly nymphs. *Psuedacris regilla* tadpoles.
10	04/05/09	0 day	No standing water	NR: 21.1 °C	None Observed	None observed
11	04/19/09	0 day	No standing water	NR: 32.4 °C	None Observed	None observed

NR = Not Recorded

Rain Year Analysis

The 2008-2009 rain year was below average for the Santa Barbara Region and was especially dry from November through April when vernal pools are often inundated. The total precipitation for Santa Barbara was 10.16 inches, which occurred during 9 rain events (i.e., storms) (Table 4.1-3). Three rain events preceded unusual warming patterns with high temperatures above 70 degrees. Ambient air temperature in January was especially seasonally atypical as recorded high temperatures reached 32°C (90°F) four times between January 10 and 20, 2009. These conditions were not ideal for long-term (> 60 days) seasonal inundation of vernal or seasonal pools or to support fairy shrimp.

Table 4.1-3 Summary of 2008-2009 Rain-Year Storm Events for the City of Santa Barbara

Event no.	Dates[*1]	Storm Events > (0.5 in.)
1	November 1 – 5, 2008	1.18 in
2	November 24 – 27, 2008	1.13 in
3	December 4 – 6, 2008	5.62 in
4	December 22 – 24, 2008	1.54in
5	January 24-28, 2009	0.63in
6	February 5-9, 2009	2.07in
7	February 13, 2009	0.50 in
8	February 15-16, 2009	1.07 in
9	April 7-8, 2009	0.54 in

[*1] Rainfall totals were recorded in downtown Santa Barbara (NOAA – NWA, 2006)

Monthly rainfall amounts for Santa Barbara are summarized below in Table 4.1-4. SP 1, 4, and 6 became inundated on January 25, 2009 during the first rain event of 2009 and maintained inundation until March 31 and April 05, 2009.

Table 4.1-4 Total Rainfall per Month for Santa Barbara

Month	Total Rainfall*1	Storm Events > 0.5 in
October	0.01 in	0 Events
November	2.10 in	2 Events
December	1.54 in	1 Event
January	0.60 in	1 Event
February	4.70 in	3 Events
March	1.00 in	1 Event
April	0.20 in	1 Event
May	0.01 in	0 Events
Totals	**10.16 in**	**9 Events**

[*1] Rainfall totals were recorded in downtown Santa Barbara
http://www.santabarbaraca.gov/Government/Departments/PW/RainSBCalendar.htm

Figure 4.1-2 Vernal and Seasonal Pools Photographs

Photo 1: View of the vernal pool from near the southwest corner of the property. Eucalyptus trees and Harding grass are visible in and around the inundated pool. This photograph was taken on February 21, 2008.

Photo 2: Southern view of in-road/in-drainage seasonal pool 6 from near the middle portion of the property. California annual grasses are visible in and around the inundated pool. This photograph was taken on February 21, 2008.

4.1.4 DISCUSSION

The low rain amounts, infrequent storms, and unseasonal high temperatures did not meet minimum environmental conditions for the vernal pool to become inundated during the 2008 – 2009 rain year. Only three seasonal pools were inundated long enough to support aquatic organisms. These include SP 1, 4, and 6. All other seasonal pools were inundated for a short period of time (<14 days) or were found not to be suitable to retain precipitation this rain year. Drought conditions (i.e., low monthly precipitation), sporadic rain events, and unusual heat waves (> 75 degrees) following rain events were responsible for reducing the inundation duration. This unusual pattern was not sufficient for the vernal pool to be inundated for greater than 30 days, support an "aquatic area" greater than 10.7 ft^2 (1.0 m^2), and exceed 1.2 inch (3.0 cm) maximum depth (the minimum known requirement for the vernal pool fairy shrimp to hatch from dormant cysts). In addition, the high ambient temperatures likely would have reduced hatching if these other requirements were achieved. The Riverside fairy shrimp requires longer duration and generally larger pool size than the vernal pool fairy shrimp. Due to these conditions, the wet-season surveys performed for the property are considered inconclusive for all pools.

To conclusively determine presence or absence of LVPB, a second survey is required per USFWS protocol guidelines Section II. c. (USFWS 1996). The second survey may include a dry season survey and cyst identification to be conducted within the summer of 2009 or prior to the onset of fall rains (typically late October to November) or a second wet season survey to be conducted before or during the 2013 – 2014 rain year. Please note that the cyst identification is only accurate to genus for branchiopods; therefore, if vernal/seasonal pools aren't inundated for a sufficient amount of time and other seasonal conditions aren't appropriate for branchiopod hatching and development, then a presence/absence determination cannot be conclusively arrived for federally-listed branchiopods. In this case, a second wet-season survey following the dry-season survey and cyst identification would need to be performed.

4.2 BUTTERFLIES

4.2.1 INTRODUCTION

A target list of invertebrate species that could potentially occur at More Mesa was developed by consulting various species occurrence records. This search included a query of the California Natural Diversity Database (CNDDB; California Department of Fish and Game 2008b) for records within the U.S.G.S. 7.5' quadrangles including and immediately adjacent to the site (Dos Pueblos Canyon, Goleta, Santa Barbara, San Marcos Pass, Lake Cachuma, and Little Pine Mtn.). Federally listed threatened and endangered species that may occur in Santa Barbara County was obtained from the U.S. Fish and Wildlife Service (http://www.fws.gov/ventura/speciesinfo/spplists/sl_santabarbara_co.cfm). Additionally, several species were added to the target list based on the request of California Coastal Commission (CCC) biologists. In addition to the fairy shrimp species discussed above, invertebrates of primary concern were various butterfly species. Background information regarding the presence of these species on and surrounding the More Mesa property was obtained through contacting local biologists and reviewing the Santa Barbara Natural History Museum collection of local butterflies (SBMNH 2008).

Special status insects potentially occurring at More Mesa are summarized in Table 4.2-1. All of these insects are considered "Special Animals" as listed by the CDFG (March, 2009). The table details listing status, habitat affiliations, and an evaluation of the potential to occur on-site.

Table 4.2-1 Special-Status Insect Species with the Potential to Occur at More Mesa

Species	Status (Federal/ State)	Habitat	Nearest Known Records
Smith's blue (*Euphilotes enoptes smithi*)	FE/-- SA	Smith's blues are found in coastal habitats and spend their entire lives in association with only two buckwheat plants. *Eriogonum latifolium* and *Eriogonum parvifolium*. Smith's blue is a non migratory species and the mobility of an individual insect is generally observed to be limited to approximately 200 feet from its hostplant	Not recorded in the CNDDB within the site vicinity; and is not known to occur in Santa Barbara County.
El Segundo blue (*Euphilotes battoides allyni*)	FE/-- SA	Relies on seacliff buckwheat to support both its larval and adult life stages. Adult El Segundo blue butterflies are non migratory.	Not recorded in the CNDDB within the site vicinity, and is not known to occur in Santa Barbara County. a population of presumed El Segundo blues may have been recently discovered in the north of the county. Confirmation of this is pending genetic analysis and would extend the range of this species northward.
Wandering Skipper (*Panoquina errans*)	--/-- SA IUCN_NT G4G5S1	The larval hostplant for this species is salt grass (*Distichlis spicata*), and this species is found in close association with salt grass habitats near the upper portions of coastal salt marshes. Wandering skipper is a non migratory species and mobility within suitable habitat appears to be low.	Known to occur in Carpinteria Salt Marsh Reserve, and small populations are known from the Santa Barbara Bird Refuge and Devereux Slough. They have also been observed at the UCSB Lagoon and are also likely to occur around the Goleta Slough/Airport saltmarshes
Monarch (*Danaus plexippus*)	--/-- SA G5S3	Eucalyptus and other trees in appropriate configurations and locations are commonly used by monarchs as roosting, resting and/or feeding sites.	Western Monarch Thanksgiving Counts, conducted between 1997 and 2006 along the California coast (D. Frey, S. Stevens, and M. Monroe) identified a small number (203) of individuals on the Mesa, thousands of individuals have been recorded along Atascadero Creek (20,000 in 1997; 4,000 in 1999; 8,912 in 2000; and 5,470 in 2001).
Globose dune beetle (*Coelus globosus*)	--/-- SA G1S1	Sand/dune, foredunes, sand hummocks, sometimes backdunes along immediate coast. Larvae and pupae spend most of time in sand or under vegetation and accumulated debris. Adults spend hotter summer months aggregating under vegetation debris. Globose are flightless, non-migratory beetles.	Observed at "Haskell's" beach dunes and dunes along Coal Oil Point.

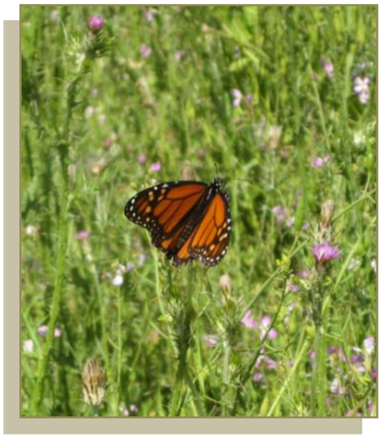
SA = Special Animal per CDFG February 2008
Ranking Explanation:
G1 = Extremely endangered: <6 viable occurrences or <1,000 individuals, or < 2,000 acres of occupied habitat
G2 = Endangered: about 6-20 occurrences or 1,000 - 3,000 individuals, or 2,000 to 10,000 acres of occupied habitat
G3 = Restricted range, rare: about 21-80 occurrences, or 3,000 – 10,000 individuals, or 10,000 – 50,000 acres of occupied habitat
G4 = Apparently secure; some factors exist to cause some concern such as narrow habitat or continuing threats
G5 = Demonstrably secure; commonly found throughout its historic range
S1-S5 = Same general definitions as global ranks but for CA species or subspecies only
IUCN - International Union for Conservation of Nature – Near Threatened -

Monarch butterflies, while not a special-status species because of large, wide-spread populations, are nonetheless considered a "Special Animal" because the annual monarch migration is considered a "threatened phenomena" by the International Union for Conservation of Nature and Natural Resources (Animal Diversity Web 2007). Given the proximity of the site to known overwintering locations and the presence of blue gum eucalyptus onsite, the site was considered to be potentially suitable for a winter roost of Monarchs. The wandering skipper and globose dune beetle are listed as "Special Animals" by the CDFG. No surveys were conducted for the globose dune beetle as this animal would only be found within coastal strand vegetation at the base of the cliff, a habitat that is lacking in this area.

4.2.2 METHODOLOGY

Focused butterfly surveys for the El Segundo and Smith's blue, and wandering skipper butterflies were conducted in late July and early August of 2008, during the species' flight season. Surveys were focused in areas where the host plants of these three species of interest were known to occur. Wandering skipper surveys were conducted in saltgrass areas within the *Frankenia* habitat of the wetland area at the north central boundary of the More Mesa property, east of SB County parcel (Refer to Figure 2.1-1 Plant Communities in Section II, *Vegetation and Habitats*) which contains *Distichlis*. Prior to the initial survey, the flight season was confirmed by the observance of wandering skippers at the nearby Devereux Slough. Surveys for both Smith's blue and El Segundo blue were conducted in the seacliff buckwheat habitat extending along the coastal bluff (Figure 2.1-1). As the flight season could not be confirmed for these two species due to lack of known local populations, host plant flowering stage and literature review of flight season window were relied upon to ensure that surveys were done at the optimal time. Each of the two surveys was one hour in length and was repeated four times, one week apart.

Surveys for the wandering skipper, Smith's blue and El Segundo blue butterflies were conducted on July 18, July 24, July 31, and August 7, 2008. Surveys began between 1230 hrs and ended by 1615 hrs. On each survey the surveyor walked slowly through the appropriate habitat for one hour. Each butterfly observed during the survey was identified to genus. Temperature and wind speed (mean and maximum) were measured at the beginning and end of each survey.



Monarch presence was monitored concurrently with the general avian surveys being conducted during the monarch's migration period between September and October of 2008. Observations were limited and intended to identify groups or multiple individuals utilizing the site in a single period. Monarch aggregations were searched for during the over-wintering period between December 2008 and January 2009.

4.2.3 RESULTS

No sensitive butterfly species were observed within the study area. A total of twelve common butterfly and moth species were observed (Table 4.2-2).

Table 4.2-2 Butterfly and Moth Species Observed at More Mesa

Common Name	Scientific Name
acmon blue	*Plebejus acmon*
Anise swallowtail (yellow form)	*Papilio zelicaon*
cabbage white	*Pieris rapae*
checkered white	*Pontia occidentalis*
common buckeye	*Junonia coenia*
common checkered-skipper	*Pyrgus communis*
crescent sp.	*Phyciodes* sp.

Table 4.2-2 Butterfly and Moth Species Observed at More Mesa

Common Name	Scientific Name
fiery skipper	*Hylephila phyleus*
grey hairstreak	*Strymon melinus*
lady	*Vanessa* sp.
monarch	*Danaus plexippus*
orange sulphur	*Colias eurytheme*
Perizoma moth	*Perizoma custodiata*

Less than 100 monarchs were seen during the general surveys conducted between September 2008 and January 2009. Monarchs were seen in groups no larger than two or three individuals and no aggregations were observed onsite. Three eucalyptus stands were identified onsite or along the property boundary; however, all were in a linear arrangement that serve more as windrows and would not be considered suitable for monarchs (Thorngate, N., J.L. Griffiths, and J. Scullen, 2007). The widest of the three stands is located along the southeastern property boundary. Although more dense than other stands onsite, its proximity to the bluffs and adjacency to the open grasslands of the Mesa expose the trees to significant wind and are not considered suitable for monarch aggregations.

4.2.4 DISCUSSION

Suitable host plants for El Segundo and Smith's blue butterflies were identified along the bluffs of More Mesa and surveys were conducted during the appropriate time of year to have observed these species if present. Although suitable habitat is present, the study site is outside of their known range and, thus, the species are not expected to be present, nor were they observed. Suitable habitat for wandering skipper was also observed and surveyed onsite, but no wandering skippers were detected. Suitable habitat for this species onsite is very small, with few *Distichlis spicata* plants. Further, the small site is isolated from similar larger emergent wetlands by several miles. Given that wandering skipper is a non-migratory species and its mobility is limited even within suitable habitat, it is not expected that the species would utilize the site.

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SECTION 5 – HABITAT SENSITIVITY

5.1 INTRODUCTION

This analysis examines the biological sensitivity of More Mesa as required by Development Standard LUDS-GV_1.2 of the Goleta Community Plan. This study is intended to:

> "review the extent of the environmentally sensitive habitat designation for the site, the extent of developable area relative to biological resources, and the site's relative importance to the related open lands within the Atascadero Creek ecosystem. The study shall provide recommendations to protect ESH areas from the adverse effects of development, including identification of all areas that shall not be disturbed, buffer areas to protect all ESH areas from uses on the site and other appropriate methods to avoid disturbance to sensitive resources."

The analysis is based upon results of those technical studies performed between April 2008 and July 2009, as described in Sections 2 – 4 of this report. Additionally, a literature review of studies conducted within the area and local expert opinion were also consulted and considered in determining the site's relative importance to the related open lands within the Atascadero Creek ecosystem. Each data layer collected in the field (i.e.: locations of plants, plant communities, wetlands, vertebrates, and invertebrates) were scored according to sensitivity factors (i.e. whether federally, state or locally listed as special-status). Using ArcGIS Spatial Analyst, these study results were added together to produce a composite final map of More Mesa illustrating the relative score (high to low) of biological resources throughout the mesa.

The following summarizes the policy background for determining ESH. Each of these policies was considered in the design of this study and analysis.

5.1.1 BACKGROUND REVIEW

As noted in Section 1 *Introduction*, the study site is located within the Coastal Zone and subject to the California Coastal Act. The Coastal Act provides that an "environmentally sensitive area" is: "Any area in which plant or animal life or their habitats are either rare or especially valuable because of their special nature or role in an ecosystem and which could be easily disturbed or degraded by human activities and developments" (Section 30107.5). The Coastal Act is administrated locally through Santa Barbara County's Local Coastal Program (LCP). The following are polices provided in the County's Coastal Land Use Plan (CLUP) that guide the determination and protection of ESH and are specific to resources found at More Mesa.

> ***CLUP Policy 9-9:*** *A buffer strip, a minimum of 100 feet in width, shall be maintained in natural condition along the periphery of all wetlands. No permanent structures shall be permitted within the wetland or buffer area except structures of a minor nature, i.e., fences, or structures necessary to support the uses in Policy 9-10.*
>
> *The upland limit of a wetland shall be defined as: 1) the boundary between land with predominantly hydrophytic cover and land with predominantly mesophytic or xerophytic cover; or 2) the boundary between soil that is predominantly hydric and soil that is predominantly nonhydric; or 3) in the case of wetlands without vegetation or soils, the boundary between land that is flooded or saturated at some time during years of normal precipitation and land that is not.*
>
> *Where feasible, the outer boundary of the wetland buffer zone should be established at prominent and essentially permanent topographic or man-made features (such as bluffs, roads, etc.). In no case, however, shall such a boundary be closer than 100 feet from the upland extent of the wetland area, nor provide for a lesser degree of environmental protection than that otherwise required by the plan. The boundary definition shall not be construed to prohibit public trails within 100 feet of a wetland.*

> ***CLUP Policy 9-14:*** *New development adjacent to or in close proximity to wetlands shall be compatible with the continuance of the habitat area and shall not result in a reduction in the biological productivity or water quality of the wetland due to runoff (carrying additional sediment or contaminants), noise, thermal pollution or other disturbances.*
>
> ***CLUP Policy 9-20:*** *Grass cutting for fire prevention shall be conducted in such a manner as to protect vernal pools. No grass cutting shall be allowed within the vernal pool area or within a buffer of five feet or greater.*
>
> ***CLUP Policy 9-21:*** *Development shall be sited and designed to avoid vernal pool sites as depicted on the resource maps.*
>
> ***CLUP Policy 9-26:*** *There shall be no development including agricultural development, i.e., structures, roads, within the area used for roosting and nesting.*
>
> ***CLUP Policy 9-27:*** *Recreational use of the roosting and nesting area shall be minimal, i.e., walking, bird watching. Protective measures for this area should include fencing and posting so as to restrict, but not exclude, use by people.*
>
> ***CLUP Policy 9-28:*** *Any development around the nesting and roosting area shall be set back sufficiently far as to minimize impacts on the habitat area.*
>
> ***CLUP Policy 9-29:*** *In addition to preserving the ravine plant communities on More Mesa for nesting and roosting sites, the maximum feasible area shall be retained in grassland to provide feeding area for the kites.*
>
> ***CLUP Policy 9-35:*** *Oak trees, because they are particularly sensitive to environmental conditions, shall be protected. All land use activities, including cultivated agriculture and grazing, should be carried out in such a manner as to avoid damage to native oak trees. Regeneration of oak trees on grazing lands should be encouraged.*
>
> ***CLUP Policy 9-36:*** *When sites are graded or developed, areas with significant amounts of native vegetation shall be preserved. All development shall be sited, designed, and constructed to minimize impacts of grading, paving, construction of roads or structures, runoff, and erosion on native vegetation. In particular, grading and paving shall not adversely affect root zone aeration and stability of native trees.*

In a 2003 memo to Ventura CCC staff regarding the designation of Environmentally Sensitive Habitat Areas (ESHA = ESH) in the Santa Monica Mountains, Ecologist/Wetland Coordinator, John Dixon, Ph.D., summarized that “there are three important elements to the definition of ESHA. First, a geographic area can be designated ESHA either because of the presence of individual species of plants or animals or because of the presence of a particular habitat. Second, in order for an area to be designated as ESHA, the species or habitat must be either rare or it must be especially valuable. Finally, the area must be easily disturbed or degraded by human activities.” Further, Dr. Dixon noted, “For those habitats that are absolutely rare or that support individual rare species, it is not necessary to find that they are relatively pristine, and are neither isolated nor fragmented.” (Dixon, 2008)

The environmental sensitivity of More Mesa in the 1982 analysis was judged based on the following three criteria:

1. Special nature of plant or animal life;
2. Role of plant and animal life in an ecosystem; and
3. Whether the environmentally sensitive areas could be easily degraded by residential development or activities associated with residential development.

It is with an understanding and consideration of the above policies and interpretation of “environmentally sensitive” habitat that this study and subsequent analysis were designed. The following details the habitat sensitivity analysis methods used to answer the questions of whether individual species of plants or animals or habitat occur onsite which are rare or especially valuable and whether they may be easily disturbed or degraded by human activities.

5.2 METHODOLOGY

The studies performed in 2008-2009 gathered data on the presence of special-status flora and fauna, the extent of wetlands, the diversity and abundance of small mammals and herpetofauna, the diversity of raptors, and the foraging, nesting, and roosting activities of white-tailed kites within the study area. Study results were mapped and analyzed in a GIS-based model using ArcGIS Spatial Analyst. Within the model, mapped species' locations were scored according to their "special" nature. The individual scored layers were then aggregated within the model to calculate a final composite output (total score). The composite output provides an overall measure of the sensitivity of various biological elements throughout More Mesa. Using color coding the final output graphically illustrates the varying degrees of sensitivity throughout the site. The final composite was used with an analysis of regional data for white-tailed kite nesting and roosting activity throughout Goleta Valley to examine the role of More Mesa within the larger Atascadero Creek ecosystem. This combined information was used to consider the site's sensitivity to residential development and associated increases in human activity as the basis of determining the extent of Environmentally Sensitive Habitat. Figure 5.1 provides an illustration of the model process.

In summary, the model process is as follows:

- Score study results based on criteria scoring system
- Combine scored criteria layers into rubrics (layers were combined by taking the maximum value for a given cell)
- Combine rubric layers (rubrics were added together and reclassified based on the total rubric output)

5.2.1 CRITERIA SCORING SYSTEM

A criteria scoring system was developed as the basis of the sensitivity analysis that provides a numerical score relative to the "special" nature or sensitivity of a given resource. Sensitivity values were based on existing federal, state, and local protection policies. For purposes of this effort "special" or "rare" (special-status) species and habitats were defined as:

- Federal or State Endangered, Threatened, or State Rare;
- Federally Proposed or State Fully Protected or Candidates for listing;
- United States Fish and Wildlife Service (USFWS) Birds of Conservation Concern;
- State Species of Special Concern, Special Animals, or Watch List Species;
- CNPS List 1-4;
- Global Rank G1-G4;
- State Rank S1-S4;
- Santa Barbara County Locally Sensitive Species;
- Western Bat Working Group Listed Species; and
- Raptor Nests.

Additionally, the County's Coastal Land Use Plan (CLUP) provides specific protection measures for wetlands, white-tailed kite nesting, roosting and foraging habitats. Specifically, CLUP Policy 9-9 requires that all wetlands be protected with a surrounding 100 foot buffer and CLUP policies 9-26 through 9-29 require protection and appropriate setbacks to known white-tailed kite nesting, roosting and foraging locations. Therefore, wetlands and white-tailed kite nest, roost and foraging areas were also considered as "special" and "rare" habitats. The evaluation criteria were developed to be transferable and repeatable, meaning the criteria scores would be applicable to similar resources within other properties throughout Santa Barbara County within the Coastal Zone, and could similarly be applied to other counties for evaluation of identified locally important coastal resources. For example, if western burrowing owl was present as a resident breeding population and identified as a special species, the rubrics associated with white-tailed kite could be applied in a similar manner to that situation. It is noted that white-tailed kite in other locations may not have similar status as a "special" species such as it is afforded by the CLUP and so the scores within its rubric at such a locale would be so adjusted.

Based on the existing regulatory framework and protection policies mentioned above, five rubrics were created to analyze the sensitivity level of resources within More Mesa. These included:

- Special-Status Plant Species and Plant Communities,
- Special-Status Wildlife,
- Wetlands,
- White-tailed kite foraging areas, and
- White-tailed kite nesting and roosting areas.

Table 5.2-1 (which follows Figure 5.1) lists the criteria used to score resources identified and mapped during the 2008-2009 surveys. A more detailed discussion of criteria and assumptions is provided below. Appendix G provides a table with the criteria scoring assumptions for each rubric.

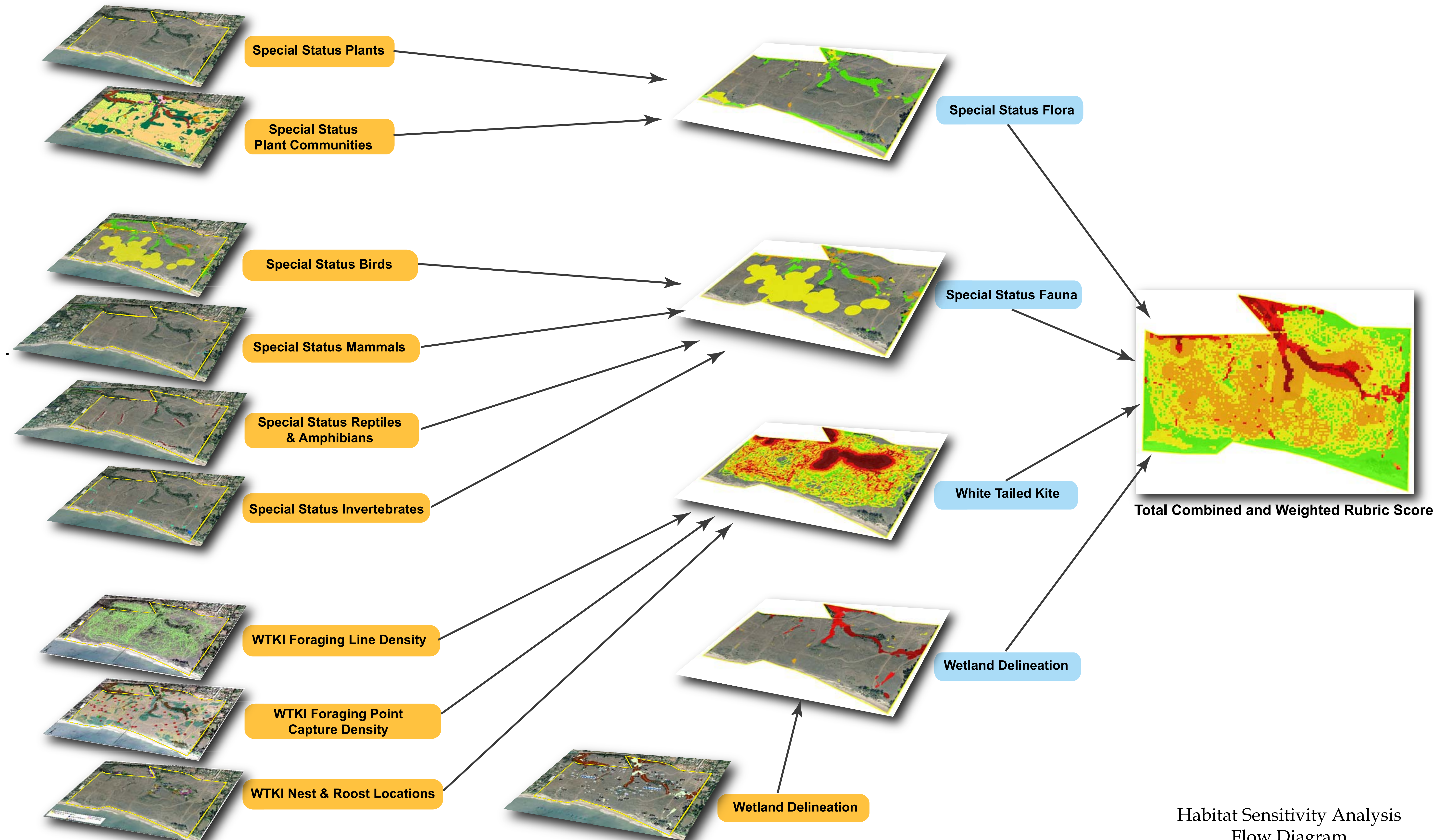
Special-Status Plant Species and Plant Communities

Special-Status Plant Species and Plant Communities were identified during the floristic inventory and plant community mapping efforts (Refer to Section 2, *Vegetation and Habitats*). Plants and plant communities were mapped in the field using a Trimble GeoXT™ Global Positioning System (GPS) unit capable of sub-meter accuracy (accurate to within less than 3 feet). Locations of special-status plants and plant communities were given a score of five (5) if listed as federal or state endangered; four (4) if federal or state threatened; three (3) if state rare, federally proposed, state candidate, or CNPS List 1; two (2) if CNPS list 2 or 3, global rank G1-G2, or state rank S1-S2; and one (1) if Santa Barbara County locally sensitive, CNPS list 4, global rank G3-G4, or state rank S3-S4. No buffers were applied to the plant or plant community input layers. The scored GIS layer was rasterized with a 5 X 5 foot cell size. Please note that this scoring criteria is based on having the model applicable to any location for the listed elements of concern; in this instance, the subject property does not have any federal or listed plant species, or candidate species, or CNPS List 1 species. Therefore, the highest score for the special status plant rubric was a "1" and the highest score for plant communities was a "3" for the spikerush-dominated vernal pool/wetland.

Special-Status Wildlife

Special-Status Wildlife were identified during the general avian, raptor, small mammal trapping, acoustical bat detection, reptile, amphibian, and vernal pool fairy shrimp survey efforts (Refer to Sections 3, *Vertebrates,* and 4, *Invertebrates*). Observations of special-status wildlife were mapped in the field using GPS or site specific aerial photographs (scale of 1"=250'). Locations of special-status wildlife were given a score of five (5) if listed as federal or state endangered; four (4) if federal or state threatened; three (3) if state fully protected, or if three or more state species of special concern or special animals overlapped; two (2) if USFWS birds of conservation concern or state species of special concern; or one (1) if a species of local concern, state special animal, state watch list species, or Western Bat Working Group listed species. No special-status reptiles or amphibians were observed during the 2008 and 2009 surveys.

Observations of special-status bird species were included in the sensitivity analysis if they occurred during the bird's sensitive period or were associated with critical elements of the species' life history. For many birds the sensitive period is the nesting or wintering period. Critical elements are typically breeding or wintering habitat. This method excludes those species that may have special-status, but that would not rely on More Mesa for those elements critical to the species' survival and reproduction (i.e. rookeries or nesting habitat). For example, the great blue heron is a Special Animal that is common at More Mesa and is also frequently found in agricultural fields, parks, harbors, and other open space areas. This species typically breeds between February and June in colonies. Rookeries are considered a critical element to the species' survival. Although individuals were seen foraging at More Mesa during the sensitive period, appropriate rookery habitat is not present. Therefore the species was not included in the sensitivity analysis.



Base Map Source: County of Santa Barbara. Aerial Source: CIRGIS, 2004.

Habitat Sensitivity Analysis
Flow Diagram

Figure 5-1

Table 5.2-1 Habitat Sensitivity Analysis Scoring Criteria

Score	Special-Status Plant Species and Communities	Special-Status Wildlife	White-tailed Kite: Foraging: Foraging Line Density (linear ft per 900sf)	White-tailed Kite: Foraging: Capture Density (captures per acre)	White-tailed Kite: Nests and Roosts: Distance from Nest and Roost (ft)	Terrestrial Wetlands
5	FE or SE	FE or SE	196 +	5-4.1	1-125	Natural or "man-made, designed" 3 parameter wetland. Exhibits native flora & fauna with high diversity. Connected (namely wetland is hydrologically connected to other wetland elements)
4	FT or ST	FT or ST	124-195	4.0 – 3.1	126-200	Natural or "man-made, designed" 3 parameter wetland. Exhibits native flora & fauna with low diversity or non-native species w/high diversity. Connected >4,000 sq ft
3	- SR - F. Proposed - S. Candidates - CNPS List 1	- SFP - Overlap of 3 or more SSC, SA, WL - SSC nest	68-123	3.0 – 2.1	201-265	Natural or "man-made, designed" 3 parameter wetland Exhibits non-native flora & fauna with low diversity Connected <4,000 sq ft
2	- CNPS Lists 2-3 - G1-G2 - S1-S2	- SSC (sensitive season) - FSC - SA or WL nest	29-67	2.0 – 1.1	266-340	Natural less than 3 parameter wetland. Isolated < 4,000 sf
1	- LR - CNPS List 4 - G3-G4 - S3-S4	- Species of Local Concern - SA or WL - WBWG listed species - Raptor nest	1-28	1.0 – 0.1	341-525	"Man-made, accidental" less than 3 parameter wetland. isolated < 4,000 sf

[1] *Status Codes:*

Federal
FE = Endangered
FT = Threatened
FSC = FWS Birds of Conservation Concern

State
SE = Endangered
ST = Threatened
SR = Rare
SFP = State Fully Protected
SSC = CA Species of Special Concern
WL = State Watch List
SA = CA Special Animal

CNPS - California Native Plant Society
1A = Presumed extinct in California
1B.1 = Rare or endangered in California and elsewhere; seriously endangered in California (over 80% of occurrences threatened/high degree and immediacy of threat)
1B.2 = Rare or endangered in California and elsewhere; fairly endangered in California (20-80% occurrences threatened)
1B.3 = Rare or endangered in California and elsewhere; not very endangered in California (<20% of occurrences threatened or no current threats known)
2.2 = Rare or endangered in California, but more common elsewhere; fairly endangered in California (20-80% occurrences threatened)
3 = More information needed - a review list
3.2 = More information needed - a review list; fairly endangered in California (20-80% occurrences threatened) 4.2 = a watch list, limited distribution and fairly endangered in California

WBWG = Western Bat Working Group

CDFG State and Global Ranks
S1 – S5 and G1 – G5

SBBG - Santa Barbara Botanic Garden
LR = Locally rare

[2] *NP = Not published*

layers. The scored GIS layer was rasterized with a 5 X 5 foot cell size. Please note that this scoring criteria is based on having the model applicable to any location for the listed elements of concern; in this instance, the subject property does not have any federal or listed plant species, or candidate species, or CNPS List 1 species. Therefore, the highest score for the special status plant rubric was a “1” and the highest score for plant communities was a “3” for the spikerush-dominated vernal pool/wetland.

Special-Status Wildlife

Special-Status Wildlife were identified during the general avian, raptor, small mammal trapping, acoustical bat detection, reptile, amphibian, and vernal pool fairy shrimp survey efforts (Refer to Sections 3, *Vertebrates,* and 4, *Invertebrates*). Observations of special-status wildlife were mapped in the field using GPS or site specific aerial photographs (scale of 1”=250’). Locations of special-status wildlife were given a score of five (5) if listed as federal or state endangered; four (4) if federal or state threatened; three (3) if state fully protected, or if three or more state species of special concern or special animals overlapped; two (2) if USFWS birds of conservation concern or state species of special concern; or one (1) if a species of local concern, state special animal, state watch list species, or Western Bat Working Group listed species. No special-status reptiles or amphibians were observed during the 2008 and 2009 surveys.

Observations of special-status bird species were included in the sensitivity analysis if they occurred during the bird’s sensitive period or were associated with critical elements of the species’ life history. For many birds the sensitive period is the nesting or wintering period. Critical elements are typically breeding or wintering habitat. This method excludes those species that may have special-status, but that would not rely on More Mesa for those elements critical to the species’ survival and reproduction (i.e. rookeries or nesting habitat). For example, the great blue heron is a Special Animal that is common at More Mesa and is also frequently found in agricultural fields, parks, harbors, and other open space areas. This species typically breeds between February and June in colonies. Rookeries are considered a critical element to the species’ survival. Although individuals were seen foraging at More Mesa during the sensitive period, appropriate rookery habitat is not present. Therefore the species was not included in the sensitivity analysis.

The sensitive period for special-status species observed at More Mesa was determined using the California Bird Species of Special Concern (Shuford and Gardali, 2008); Birds of North America online (Poole, 2005); and CDFG’s Life History Accounts and Range Maps – California Wildlife Habitat Relationships System (Zeiner, 1990). These sources, as well as California Partners in Flight (CPIF, 2009) were used to also determine the average territory size for each special-status bird species. A buffer equivalent to the species-specific average territory size was then applied to each observation, limited to within suitable habitat. The special-status species score was applied to each observation point and buffer. The scored GIS layer was rasterized with a 5 X 5 foot cell size.

Observations of special-status bat species were assigned a 30 foot buffer (equal to the detection range of the Peterson D240X). The special-status species score was applied to each observation point and buffer. The scored GIS layer was rasterized with a 5 X 5 foot cell size.

Wetlands

Wetlands were identified during the wetland delineation and plant community mapping efforts (Refer to Section 2, *Vegetation and Habitats*). Waters of the United States and State of California were delineated across the study site to determine the location and extent of areas that meet the U.S. Army Corps of Engineers (Corps), California Department of Fish and Game (CDFG), California Coastal Commission (CCC), and County of Santa Barbara definitions of a wetland. For purposes of the sensitivity analysis, wetlands were evaluated for not only their jurisdictional authority, but also their current ecological function, origins, disturbance level, and size. Sensitivity values were applied based on whether the wetland is natural or man-made; meets one, two or three parameter rules; exhibits native or non-native flora and fauna; has high or low diversity of flora and fauna; and whether it is relatively large (> 4,000 square feet) or small (< 4,000 square feet). The use of 4,000 square feet is based in part on the federal Nationwide Permit program wherein 1/10th of an acre (4,350 sf) is used as a regulatory threshold. For instance, a loss of greater than 1/10th acre of three parameter wetland requires compensatory mitigation and pre-construction notification; loss of less than 1/10th acre of waters of the U.S. is considered a minor discharge that does not require a pre-construction notification. All wetlands were scored according to the criteria outlined in Appendix G. No buffers were applied. The scored GIS layer was rasterized with a 5 X 5 foot cell size.

White-Tailed Kite Foraging Areas

White-tailed Kite Foraging Areas were identified during the year long focused study of white-tailed kite foraging behavior on More Mesa (Refer to Section 3, *Vertebrates*). Biologists conducted focal sampling for individual foraging kites in discrete foraging bouts, which constituted a specific behavior pattern (i.e. foraging: flight, hover, dive, strike, and/or capture) occurring continuously for a discrete time interval. A foraging bout was started either at the time a kite left a perch to begin hunting, or if already in the air, 15 seconds after the individual was first observed to eliminate bias. Bouts ended when the bird ceased hunting (returned to perch, engaged in other activities such as conspecific interactions, etc.), flew out of view of the observer, or when the individual successfully made a capture and returned to a perch or consumed the prey item on the wing. Data recorded and mapped during each foraging bout included: 1) foraging flight path, 2) number and 3) approximate location of hovers, dives, strikes, and prey captures, 4) prey species captured, if possible, 5) the fate of prey (i.e. consumed by captor, passed to mate or fledgling, carried to nest), and 6) time interval (i.e. time each specific foraging bout started and ended). Foraging data collected for juvenile kites was omitted from the sensitivity analysis as juveniles are still developing foraging skills that are not indicative of effective hunting and capture techniques.

Foraging data was analyzed in two forms for the sensitivity analysis, line and point data.

Foraging Line Data collected for each foraging bout traced the route of the bird in flight. Each foraging bout was traced onto site specific aerial photographs at the time of observation. These foraging routes were digitized and could then be analyzed using ArcGIS (Figure 3.1-6 -line data). The resulting line data was overlaid, and analyzed, with a grid extent of 30 X 30 foot cells. The grid extent was chosen to correspond with the average home territory size for *Microtus californicus*. Using Hawth's Analysis Tools for ArcGIS, the total line distance within each 30 X 30 foot cell was calculated by measuring the distance of each line that traverses within a cell boundary. The output layer summarized the total line distance for each 30 X 30 foot cell throughout the study area. The total line distance per cell ranged from 0 – 332 linear feet. Using a cumulative distribution frequency analysis the natural breaks in the data were identified and used to establish the relative scores for the line distance per cell (See Appendix G). Cells containing greater than 196 linear feet of foraging line data were scored a five (5), 195 - 124 feet a four (4), 123 - 68 feet a three (3), 67 – 29 feet a two (2), 28 – 1 foot a one (1). The scores were applied to the grid to produce a final rubric score for foraging areas.

Foraging Point Data included dive, strike, and capture data. As expected, foraging behaviors were observed in a tiered effect, with kites most frequently seen hovering, followed by diving and striking, and with prey captures observed least frequently. For analysis purposes capture data (Refer to Section 3.1, *Birds*, Figure 3.1-7) was considered most important as it revealed locations of foraging success, as opposed to foraging attempts. As discussed in more detail in Section 3, *Vertebrates*, each foraging bout averaged 9.2 hovers (range 1 – 53), bouts with dives averaged 2.4 dives (0 – 9), bouts with strikes averaged 1.1 strikes (0 – 2), and bouts with prey captures had 1 capture per bout. Point locations for captures were analyzed using the ArcGIS Spatial Analyst point density tool. Using the point density tool, higher value was given to those areas where there was a higher density of captures. Eighty five known captures were analyzed. The point density was analyzed for a 200 ft diameter circle, with a 30 ft output cell size. A 200 ft diameter analysis extent was chosen based on the estimated range in a WTKI's field of vision (100-280 ft) at a typical foraging height. No weights were applied. The density output was provided in acres, ranging from 0 – 5 captures per acre. Scores were assigned based on the density value: five (5) 5-4.1 captures per acre; four (4) 4.0 – 3.1; three (3) 3.0 – 2.1; two (2) 2.0 – 1.1; and one (1) 1.0 – 0.1.

White-tailed Kite Nesting and Roosting Areas

CLUP policies 9-26 through 9-28 specify that recreational uses and development shall be setback sufficiently from known nest and roost areas in an effort to minimize impacts on the habitat. To aid in determining the appropriate setbacks for such land uses, an analysis of the distance from known nest and roost locations to nearby urban and suburban disturbances was used to estimate the tolerance of kites for different types of disturbances. Five disturbance categories were analyzed: (1) structural; (2) development (roads, fencing, walls, lawns, and fuel management zone); (3) active recreational use such as equestrian and bicycling (no motorized vehicles); (4) passive recreational use such as walking and bird watching; and (5) no human activity.

For use in the analysis, current white-tailed kite nest locations on More Mesa were identified and mapped during the 2008 – 2009 surveys. In addition, historic nests and roosts extending back to 1963 were identified throughout Goleta Valley, including More Mesa, from a review of background literature and consultation with local experts (Holmgren, 2009). A total of 42 nest locations throughout Goleta Valley were identified; however, only those nests within 500 feet of a disturbance were included in the analysis. The reason for excluding those nests is that the focus of the analysis is on those kites that are tolerant of suburban land uses and will nest near to human activity, not on those kites that live in open space lands distant from any human disturbances. As is evident by the data presented herein and similar to other raptors that are urban tolerant (such as Cooper's hawk), the white-tailed kite can successfully nest in suburban surroundings provided that adequate prey is available near-by and nest disturbance is limited. The key question becomes, what is the tolerance distance for such disturbances for such kites?

Where the surrounding uses of historic nests could not be confirmed, and so the distance to disturbance, the nest location was excluded. Of the 42 nests considered, 17 were within 500 feet of a disturbance and their surrounding land uses could be confirmed, thus, they were included in the analysis. At each nest the distance to the nearest disturbance (roads, yards, agriculture, trails, etc…), distance to the nearest structure, riparian or woodland corridor width (if applicable), and adjacency to open space and foraging habitat were measured from historical aerial photography.

Table 5.2-2 illustrates the raw statistics and gamma distribution for the distance from the 17 nests considered to the nearest disturbance and structure. As expected, the results show that the birds are more willing to nest near (tolerant of) disturbances than structures. The mean distance between nests and nearby disturbances is 97 feet as compared to 197 feet for structures. A quartile is any of three points (1^{st}, Median, 3^{rd}) that divide an ordered distribution into four parts each of which contain one quarter of the data. The raw statistics reveal that 25% (5) of the nests analyzed were located as close as 123 feet from the nearest structure, four more nests (a total of 9 or 50%) were within 140 feet, and 75% (13) of the nests were located as close as 265 feet from the nearest structure. The tolerance for disturbance is greater, with 75% (13) of the nests located within 125 feet of a road, yard, agricultural field, trail, or similar human-related disturbance.

Table 5.2-2 Statistics for Measurements of Distance from Nests for Urban Tolerant Kites in Goleta Valley to Disturbance

Parameter	Distance (feet)	
	Disturbance	Structure
Raw Statistics		
Minimum	38	70
Maximum	240	440
Mean	97	197
First Quartile (ie: 25% of nests located within this distance)	53	123
Median	87	140
Third Quartile (ie: 75% of nests located within this distance)	125	265
Gamma Distribution (% of which nests located within distance shown)		
90 Percentile	170	341
95 Percentile	200	400
99 Percentile	264	526

A statistical test of the 17 nests was conducted to determine what type of distribution the data occurred in, such as either a normal distribution (bell-like histogram curve), log normal (the raw data histogram is skewed to the left, but the log of the data shows a normal distribution), or a gamma distribution (histogram skewed left with a long right tail). The best fitting distribution was the gamma distribution, as illustrated in Figure 5-2 and 5-3 below. The gamma distribution results for the 90th, 95th, and 99th percentile of the data used are shown in Table 5.2-2. Please note that the percentile is the value of a variable below which a certain percent of observations fall. So the 90th percentile is the value (or score) below which 90 percent of the observations may be found. Of the nests of presumed urban tolerant kites in Goleta Valley, Table 5.2-2 indicates that 90% of the nests were within 341 feet of the nearest structure and as close as 170 feet from the nearest disturbance. Figure 5-4 illustrates the tolerance of the kites to nest near disturbances and structures.

Figure 5-2 Histogram for Distance to Structure for Goleta Valley Nests

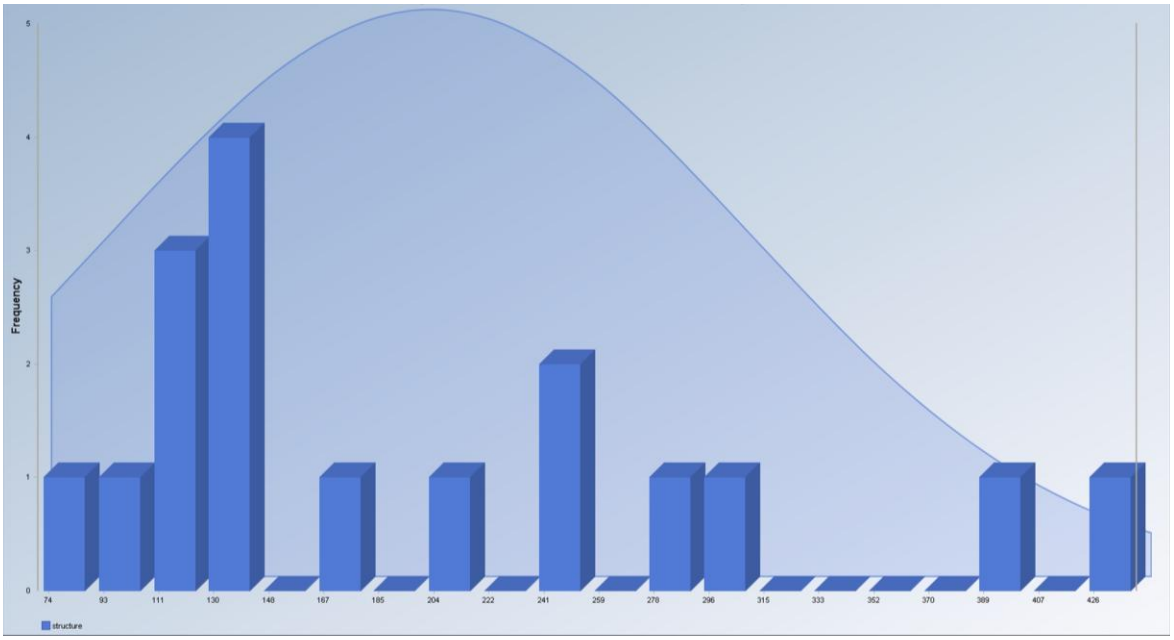
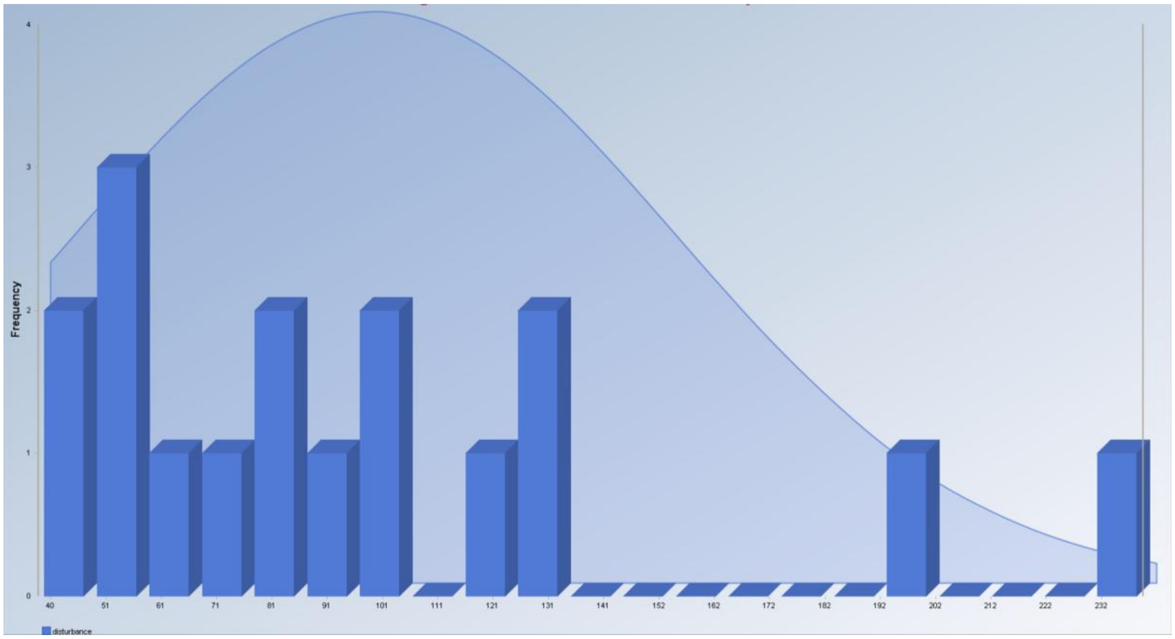


Figure 5-3 Histogram for Distance to Disturbance for Goleta Valley Nests



Results of the analysis provided benchmarks of tolerance as a function of distance from the nest for presumed urban tolerant kites. These benchmarks were used to assign conservative sensitivity scores to known nests and roosts within the study site. Using the analysis above as the initial criteria, the final sensitivity scores were adjusted using expert biological opinion based on the 2008-2009 field observations at More Mesa. Although the analysis was completed only for nest locations within Goleta Valley that were in general proximity to existing development, a general comparison with roost location data showed that roosts were similarly tolerant of disturbance and thus application of the nesting criteria scores suitable. The scores were assigned as follows (five being most sensitive and one being least sensitive): five (5) 0 – 150 feet; four (4) 151 – 300 feet; three (3) 301 – 400 feet; two (2) 401 – 500; and one (1) 500 feet and greater. The criteria scores were developed for input into the model to analyze the sensitivity of nesting and roosting habitat on More Mesa. It is important to note that the criteria scores differ from the setbacks and buffers identified in Section 6.1, *Setbacks and Buffers*. Table 6.1-1 was adapted from the above analysis and finalized with input from the ornithologists involved in this study. A comparison of the scoring criteria to the data on urban tolerant kite nesting indicates that about half of the nests (9 of 17) were within 150 feet of structures (score value = 5), and almost 90% of the nests were within 300 feet of structures (score value of 4 or greater).

5.3 RESULTS

5.3.1 SPECIAL NATURE OF PLANT AND ANIMAL LIFE

The following are the combined scored criteria layers (model rubrics): special-status plant species and plant communities, special-status wildlife, wetlands, and WTKI habitat. Each of these illustrations and individual outputs is the result of the inputs and assumptions described in the previous pages. The graphics illustrate the distribution of special-status resources (the special nature of plant and animal life) throughout the study site. Sensitivity ranges from high (5) to low (1). The color code used to graphically illustrate sensitivity is as follows: (5) brown, (4) red, (3) orange, (2) yellow, and (1) green. Where no sensitivity for that rubric is present, no color was used (transparent to aerial photograph base map). The importance of each these illustrations is discussed in detail in the pages following the illustrations.

Special-Status Plant Species and Plant Communities

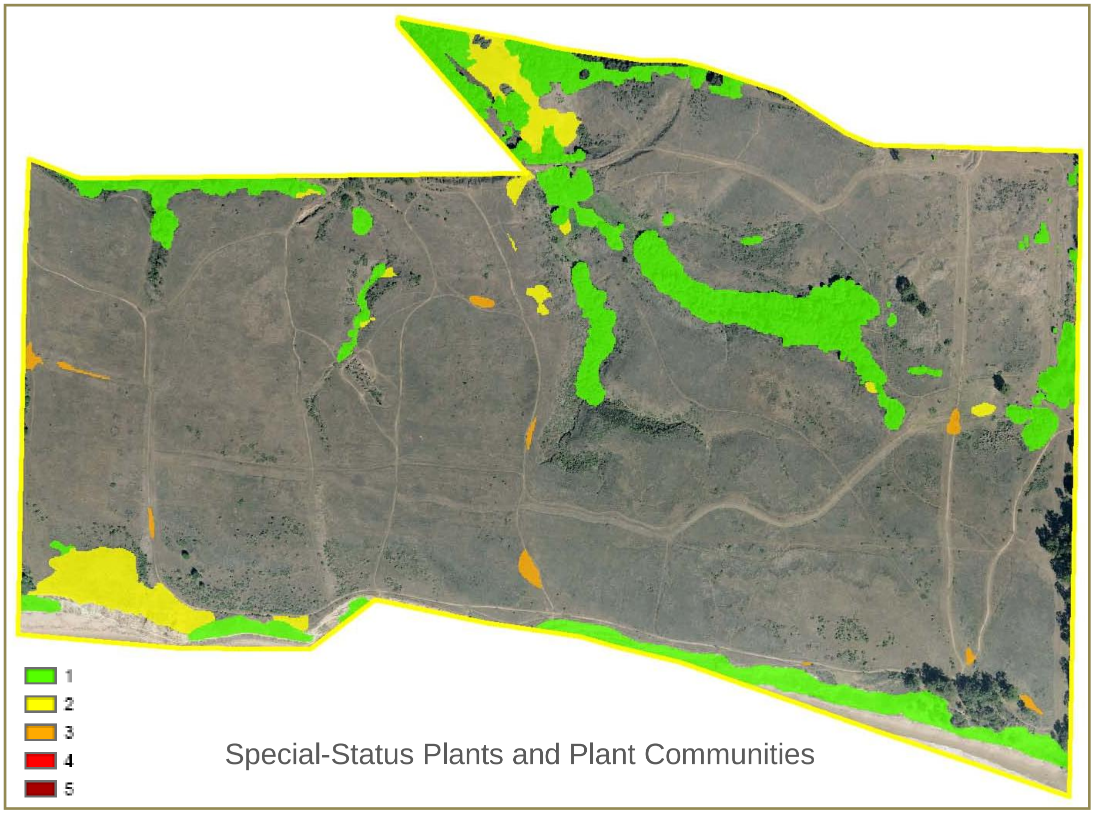
The 2008 inventory of More Mesa flora identified 200 vascular plant species within the study area boundaries. A list of all plants observed on-site, including family, scientific and common names as well as nativity is provided in Appendix A. Of the total species observed, 103 were native (51%) and 97 were non-native species. The 200 total species represented 155 genera in 56 families. No CNPS list 1, 2, or 3 species were identified onsite. Two CNPS List 4.2 species, cliff desert dandelion (*Malacothrix saxatilis* var. *saxatilis*) and southern California black walnut (*Juglans californica*), and three locally rare species (Wilken, 2007), Pacific foxtail (*Alopecurus saccatus*), coyote thistle (*Eryngium vaseyi)*, and coast allocarya (*Plagiobothrys undulatus*), were confirmed to occur within the study area. In addition, two other species of local interest, Jolon brodiaea (*Brodiaea jolonensis*) and western goldenrod (*Euthamia occidentalis*) were also identified within the study area.

All wetland and riparian vegetation series, native grassland types and California encelia and seacliff buckwheat series delineated on Figures 2.1-1 and 2.1-2 constitute special-status plant communities because they are uncommon within the regional context of the study area or have been identified by state or federal resource agencies as relatively rare. The occurrence of locally uncommon plant taxa within the wetland plant communities (primarily the vernal pool in the southeast corner of the site) further supports the determination that the following plant communities merit special status:

Wetland Series

- Alkali heath;
- Brown-headed rush;
- Bulrush-cattail;
- California annual grassland in areas of topographic depressions dominated by Mediterranean barley and Italian ryegrass (see Figure 2.3-1 Wetland Delineation Map);

Figure 5-4 Combined Scored Criteria Layers (Model Rubrics)



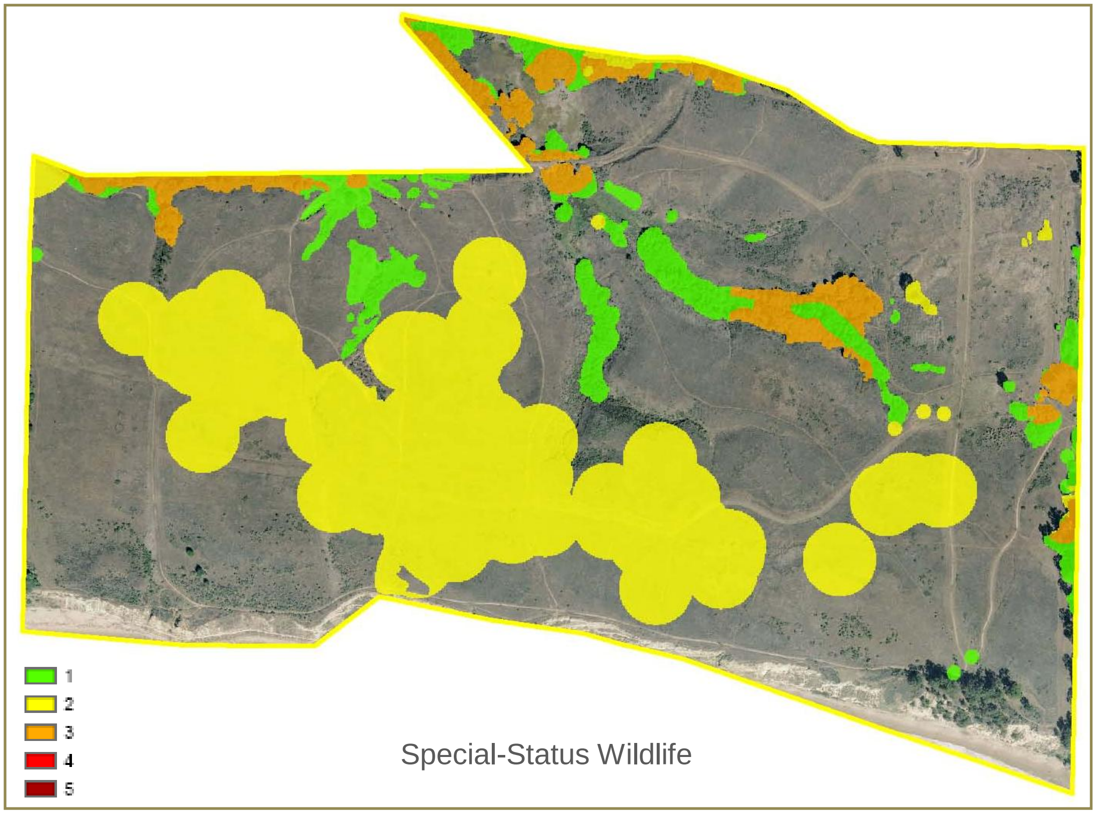
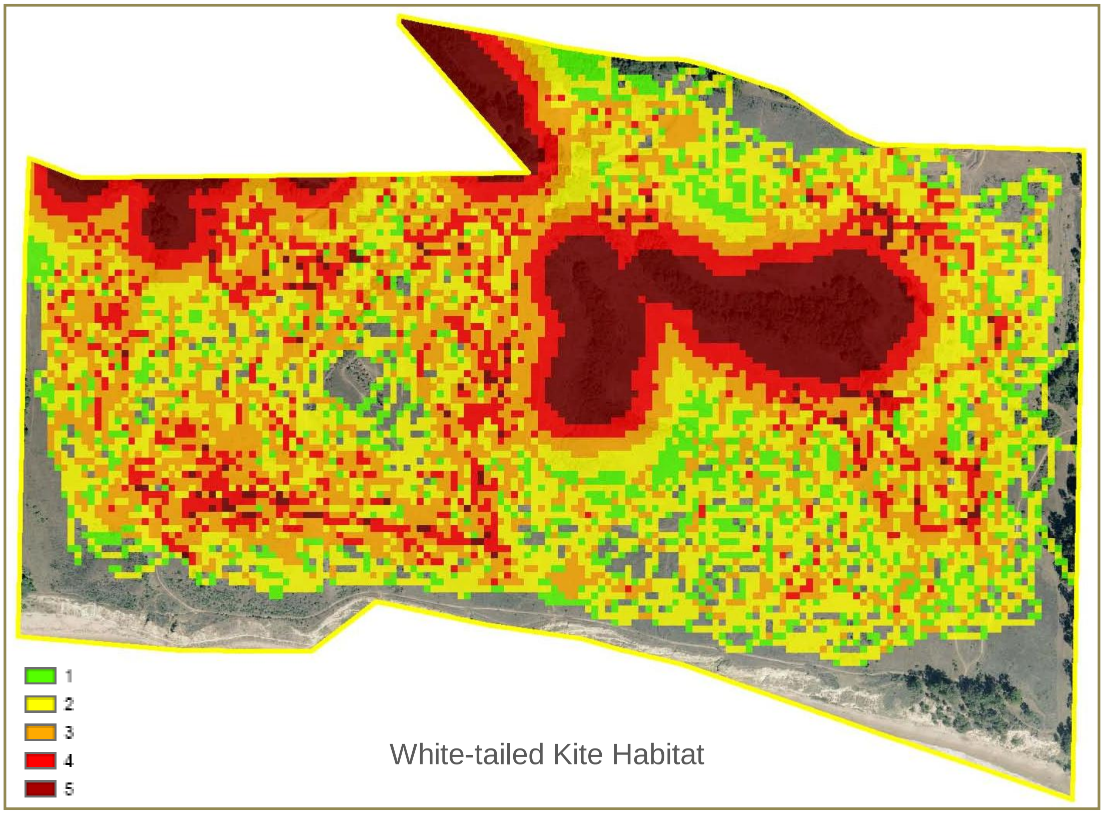
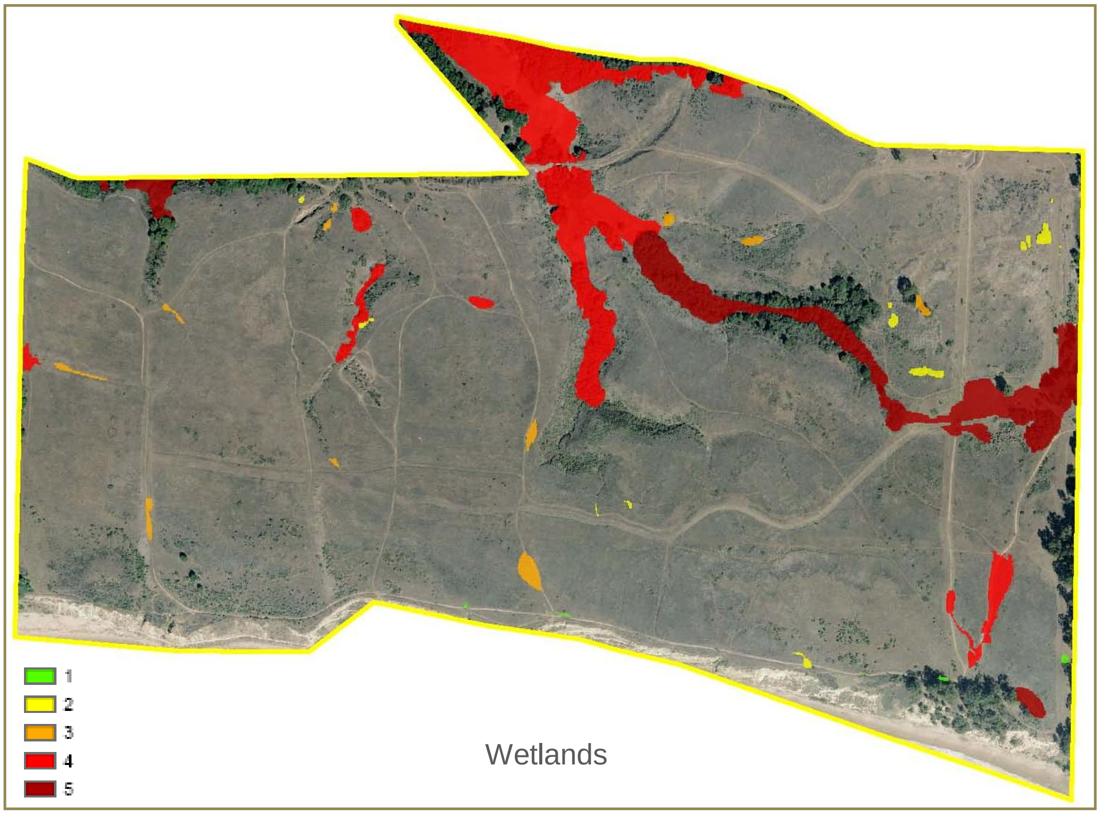


Figure 5-4 Combined Scored Criteria Layers (Model Rubrics) Cont'd





- Introduced perennial grassland in areas of topographic depressions and within natural drainage features dominated by Harding grass and identifiable as wetland;
- Marsh baccharis;
- Meadow barley;
- Mixed willow; and
- Spikerush.

Upland Series

- California brome;
- California encelia;
- Coast live oak;
- Purple needlegrass; and
- Seacliff buckwheat.

Portions of the study area dominated by coyote brush immediately adjacent to seacliff buckwheat and California encelia series (i.e., the ecotonal area) also constitute a special-status plant community given its inclusion in the coastal bluff and stabilized coastal dune scrubs onsite. Where coyote brush occurs along natural drainage features as the dominant vegetation series, it should also be treated as a plant community of special concern because it provides valuable protection (i.e., cover of the drainage feature and important soil binding properties minimizing soil erosion).

The dominant plant community of the mesa consists of grassland habitat, which consists primarily of introduced perennial grassland dominated by Harding grass. Areas of annual grassland are present where seasonal mowing occurs along trails and in the western portion of the site on more well-drained soils containing less clay compared to the eastern mesa. The years of human influence on the study area have reduced the native composition considerably compared to other marine terraces dominated by native grasses and forbs north of Point Conception that comprise the classic Coastal Terrace Prairie described by Holland (1986). While small patches of grassland dominated by native species such as purple needlegrass (*Nassella pulchra*), California brome (*Bromus carinatus*), and meadow barley (*Hordeum brachyantherum*) exist on slopes and along drainages within the study area, the past and present anthropogenic forces (i.e., farming, grazing, disking, etc) introduced Harding grass and various Mediterranean annual grasses to the site and facilitated these non-native species colonization and persistence across the site.

In a 2003 memo regarding the designation of ESHA CCC Ecologist/Wetland Coordinator, John Dixon, noted that annual grasslands located in previously disturbed areas, cattle pastures, valley bottoms and along roadsides, may harbor native forbs among their more dominant invasive non-native species. He further notes that the term "California annual grassland" recognizes that non-native annual grasses are now considered naturalized and a permanent feature of the California landscape and should be acknowledged as providing important ecological functions. He recommended an inspection of annual grasslands be completed prior to any impacts to determine if any rare, native species are present or if any wildlife rely on the habitat as a means to determine if the site meets the Coastal Act ESHA criteria. As part of this analysis all grasslands were inspected within the study area for special-status species. Results of the special-status plant surveys found the dominance of Harding grass onsite limiting to native species. Neither the California or the introduced perennial grasslands onsite were found to harbor special-status plant species. However, the ecological function of these grasslands is considered essential for special-status wildlife and is examined in the analysis for special-status wildlife and white-tailed kite habitat below.

In conclusion, due to the level of disturbance on More Mesa and the introduction and spread of non-native species such as Harding grass, special-status plants and plant communities have been reduced onsite and are generally limited to onsite drainages, riparian habitats and the coastal bluffs. Riparian communities within the South Coast are recognized for their species-richness and due to the extent of losses of such habitats they are considered rare and seriously threatened. Some estimates of losses range as high as 95-97% in southern California (Faber, 1989). There have been continuing losses of the small amount of riparian woodlands with time. Today these habitats are, along with native grasslands and wetlands, among the most threatened in California (Dixon, 2003). Grasslands are also recognized for their ecological value for wildlife, specifically special-status birds (discussed below), but the spread of Harding grass has reduced biodiversity of plants onsite. The California Invasive Plant Council ranks Harding grass as moderately invasive and that it is widespread in California because it has been used as a forage species and for revegetating after fires. Moreover, this non-native grass was observed dominating seasonal wetland habitat in a number of areas throughout the eastern study area. Of premiere importance, is the potential for this species to further encroach upon the vernal pool in the southeast corner of the study area. Harding grass already surrounds the vernal pool, limiting the extent of native vernal pool species in this area. From an ecological perspective, as reflected in the sensitivity analysis, riparian and woodland communities onsite have the highest sensitivity values.

Special-Status Wildlife Species

Birds. Of the 150 bird species that were detected during the study period, 36 are considered special status species (Appendix E). Detection locations for these species are provided in Figure 3.1-2. The California brown pelican is listed as Federally and State Endangered (proposed for federal delisting), the peregrine falcon is considered State Endangered and Fully Protected and is Federally Delisted, and the white-tailed kite is Fully Protected. Of the remaining 33 special-status species, CDFG considers 12 Species of Special Concern, have placed 9 on their Watch List, and list 12 as Special Animals. Twenty-one of the 36 species of special concern were not detected during the appropriate season of concern (Table 3.1-5). The remaining 15 sensitive species were directly observed or sign of them was found (e.g. feathers, pellets, etc.) during the appropriate season of concern within or adjacent to the study area. However, of these 15 species, only nine species were regularly detected on multiple surveys during the appropriate season *and for which* appropriate habitat occurs on site for that season. These species include: white-tailed kite, northern harrier, Cooper's hawk, Allen's hummingbird, Nuttall's woodpecker, loggerhead shrike, oak titmouse, yellow warbler, and grasshopper sparrow. Year-round residents included: white-tailed kite, Cooper's hawk, Nuttall's woodpecker, and oak titmouse. Seasonal residence included: Breeding – Allen's hummingbird, yellow warbler, and grasshopper sparrow; Winter – northern harrier and loggerhead shrike. The sensitivity analysis included observations for grasshopper sparrow, yellow warbler, Allen's hummingbird, oak titmouse, and Nuttall's woodpecker. Nest locations for Cooper's hawk and red-tailed hawk were also scored for sensitivity. Northern harrier was not incorporated into the analysis because they use the project site as only a small portion of their far greater foraging area and do not appear to be dependent on the resources present at the site. White-tailed kites were analyzed separately under the white-tailed kite habitat analysis below. Loggerhead shrike was excluded from the analysis because they displayed no signs of breeding and are not known to breed in this area.

Most special-status bird species observed onsite utilized riparian, woodland and wetland habitats. The main exception to this was the grasshopper sparrow, which was observed within the central grassland/scrub habitat of the study site. Detections primarily consisted of solitary singing males, who often counter-sung with the adjacent male(s). Based on these counter-singing observations and the general movement patterns of the males, it is believed that five males held territories within the study area. Scored observations of this species contributed significantly to the sensitivity score of grasslands, illustrating their ecological value for wildlife.

Mammals. The results of the small mammal trapping, acoustical bat detection surveys, and incidental and direct observations of mammals at More Mesa confirmed the presence of 24 terrestrial mammal species. Of these 24 species, four bat species are considered special-status. The western mastiff and western red bat are listed by CDFG as California Species of Concern and by WBWG as highest priority for funding, planning, and conservation actions. WBWG considers these species imperiled. Hoary bat and Yuma myotis are on the CDFG Special Animal list. Hoary bat is considered a "Medium" conservation priority by the WBWG. Yuma myotis is considered a "low to medium" conservation priority.

Special-status bat observations were generally along habitat edges, within grasslands adjacent to woodlands, riparian, or wetland habitat. The limited number and buffer size of bat observations meant that their contribution to the sensitivity analysis was relatively small as compared with special-status birds.

Reptiles and Amphibians. The results of the pitfall trapping, visual encounter, and California red-legged frog surveys at More Mesa confirmed the presence of two amphibian and six reptile species. No special-status reptile or amphibian species were observed. Consequently, herptofauna provided no input to the sensitivity analysis.

Invertebrates. No sensitive butterfly species were observed within the study area, and consequentially, the field efforts concerning these animals did not provide information for the sensitivity analysis.. No LVPB were observed during surveys of the vernal and seasonal pools surveyed during 2008 - 2009 wet-season. The low rain amounts, infrequent storms, and unseasonally high temperatures did not meet minimum environmental conditions for the vernal pool to become inundated during the 2008 – 2009 rain year. Due to these conditions, the wet-season surveys performed for the property were inconclusive for all pools. No special-status invertebrate species were observed.

In conclusion, the habitat with the highest ecological value for wildlife is Coast Live Oak and mixed willow riparian as they contain the greatest diversity of special-status species onsite. Because of their complex and multi-layered vegetative structure, available water supply, vegetative cover and adjacency to shrubland habitats, they are attractive to many native wildlife species, and provide essential functions in their lifecycles (Dixon, 2003). During the long dry summers in this Mediterranean climate, these communities are an essential refuge and oasis for much of the areas' wildlife, including small mammals which disperse into adjacent grasslands and are forage for the white-tailed kite. Riparian habitats supported the majority of breeding bird activity observed onsite. The grasslands onsite are also recognized for their support of special-status species. Although not breeding onsite, the loggerhead shrike was observed in the central and western grassland/scrub habitats. Additional species observed foraging in the grasslands, but not included in this portion of the sensitivity analysis include the white-tailed kite (analyzed below), red-tailed hawk, barn owl, and northern harrier.

Wetlands

The wetland delineation identified a total of 17.6 acres including 21,926 linear feet of intermittent streams of Corps-jurisdictional waters of the U.S. on the study site (Table 2.3-1; Figure 2.3-1). In addition to the Corps' jurisdictional area as identified above and previously described, an additional 15.60 acres of the study area met the Coastal Act definition of wetlands based on the presence of either a predominance of hydrophytic plants and/or positive indicators for hydric soils and/or wetland hydrology. The total Coastal Act jurisdictional area is approximately 33.22 acres, which includes approximately 21,926 linear feet of intermittent stream channels. The same area meets the County of Santa Barbara's definition as a wetland.

Wetlands associated with the highest ecological function were located within the riparian habitat onsite. Small, isolated, man-made and naturally-formed pools meeting the one parameter rule were generally associated with trails and man-made disturbances across the site. Only a few pools were identified within grassland habitats. As noted above, an important observation since the 1982 field work was performed is the spread of Harding grass throughout the site. The basin bottomlands of Drainage Areas A and B, and the isolated topographic depressions that occur throughout the eastern terraces of the site are now dominated by dense impenetrable swards of Harding grass.

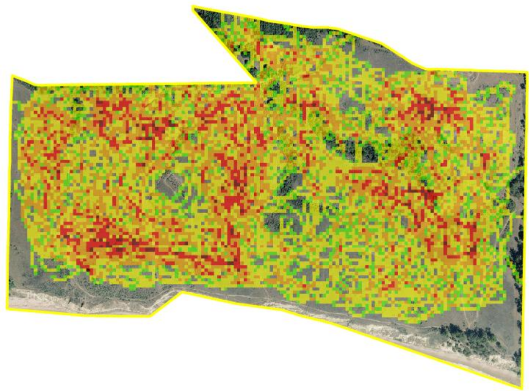
The upper reach of Drainage B (Segment B3 on Figure 2.3-1) originates in the northeast corner of the study area where a concrete-lined storm drainage ditch 'daylights' onto the study area. This feature appears to receive road and surface runoff from the Hope Ranch residential area, and conveys it within a primarily excavated ditch that traverses the eastern edge of the More Mesa. Based on the presence of dense scrub-shrub/forested wetland and freshwater emergent wetland, offsite drainage contributes a substantial amount of water to this portion of the study area. Although the source of this wetland is offsite it remains a substantial source of water for the riparian habitat of Drainage B.

White-tailed Kite Foraging Habitat

As discussed in previous reports by Waian, Stendell, and Lehman, a measure of small mammal abundance is not the most reliable means of determining the value of WTKI foraging habitat. Several studies have noted successful captures of

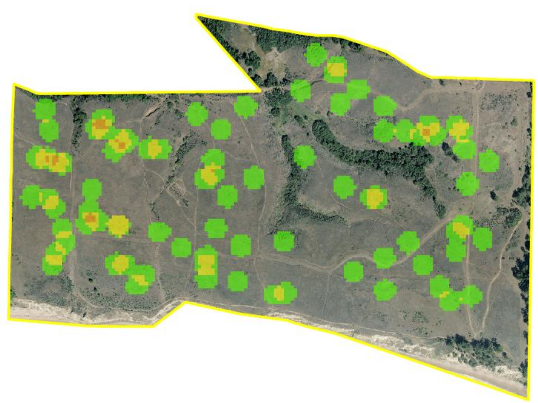
Microtus by WTKI in areas where small mammal trapping failed to capture a *Microtus*. Therefore, this study focused on recording the specific locations of WTKI foraging activities. Between mid-April 2008 and mid-April 2009, a total of 317 individual foraging bouts constituting a total of 15.8 hours of white-tailed kite foraging observations were collected (Refer to Section 3.1, *Birds*, Figure 3.1-6). All foraging bouts had to include at least one hover to be included in the analysis. White-tailed kites identified and pursued a potential prey item 83.6% (229 bouts of the 274 with known conclusions) of the time they engaged in hunting. Individuals attempted to capture prey 42.0% (115 bouts) of the time they hunted, or 50.2% of the time they pursued prey. Kites successfully captured prey 31.0% (85 bouts) of the time they engaged in hunting activities, or 73.9% of the time they attempted a capture. Both foraging line data and point capture data were analyzed to determine the value of WTKI foraging habitat within More Mesa.

Analysis of foraging line data indicated seven areas of high foraging density: California annual grasslands 300-500 feet from the western project boundary; the California annual grassland between Drainage A1 and A2; coyote brush scrub and introduced perennial grassland approximately 1,000 feet northeast of the southwest corner of the study site; introduced perennial grasslands west of Drainage B1 extending south to north from the bluffs to the County parcel; the central wetlands onsite; the introduced perennial grasslands directly south of Drainage B3; the introduced perennial grasslands and coyote brush scrub south and west of the Mockingbird Lane entrance. These areas are illustrated in the model outputs as a series of red lines in each of the described areas. A comparison of the foraging line data with the plant community map indicated a larger degree of foraging in more heterogenous and edge habitat. Those grasslands near wetlands and riparian habitat that have a higher small mammal abundance. One large grassland area was found to have little foraging activity, the introduced perennial grasslands between the bluffs and drainages B1 and B2. This grassland area was noted as having a higher predominance of Harding grass as compared with other areas of perennial grasslands onsite. Small mammal abundance results for this area, Line D, were the second lowest of all areas trapped. The higher percent dominance of Harding grass in this area is thought a possible contributor to its lower small mammal abundance and correspondingly lower degree of foraging by WTKIs.



In conclusion, nearly the entire site is utilized by WTKIs for foraging (yellow and green colored areas). The western half of the study site appears more important for foraging as the highest density of foraging activity occurs within grasslands west of the central drainage onsite. Foraging in the east is associated mostly with grasslands near to drainage and wetland features. Foraging data indicates the kites kept a minimum 100 foot setback from the property boundary (adjacent structural or disturbance features) for foraging activities. Neither the eastern, western, or north-central most boundary were utilized for foraging regularly. The southeast, southwest, and northeast corners of the property have the least foraging activity.

Analysis of capture point data indicated four areas of relatively high capture density: California annual grasslands 300-500 feet from the western project boundary; the California annual grassland directly adjacent to and east of Drainage A1; coyote brush scrub and introduced perennial grassland approximately 1,000 feet northeast of the southwest corner of the study site; and the introduced perennial grasslands and coyote brush scrub south and west of the Mockingbird Lane entrance.



A review of other foraging data (strike, dive, and hover data) indicated a larger degree of effort and success on the western half of the property.

White-tailed Kite Nesting and Roosting Habitat

White-tailed kite were observed during all surveys throughout the study period. During the 2008 breeding season, a maximum of four adults and six juvenile kites were observed. Throughout the 2008-2009 winter period, the number of kites within the study area during a single survey ranged between two and six individuals. During the 2009 breeding season, the maximum number of observed white-tailed kite was six adults and six juveniles. In summary, two pairs of white-tailed kite nested within the study area in 2008, while three nesting pairs were present in 2009. A total of six young were produced in 2008, with each pair successfully fledging three young. As of June 01, 2009 a total of 4 young have been produced. The successful "East Pair" had built a second nest and the number of young was unknown at the time of preparation of this report. The other two pair at More Mesa were incubating as of June 01, 2009 and the total number of fledglings for the year are yet to be determined.

A total of 10 roosting surveys were conducted between mid-September 2008 and mid-February 2009, with 3 – 6 kites regularly observed within the study area during this time. No kites were observed flying into the study area near dusk during this time period. Furthermore, resident individuals remaining within the study area were not observed roosting communally, instead apparently choosing to settle as individuals or pairs in unique locations within their general foraging areas. In 2008, the East Pair and the West Pair established loose territories (or primary use areas) that effectively divided the study area in half during the breeding season, with an area of overlap through the wetland and central mesa. During the 2009 breeding season, three pairs of kites nested within the study area and the foraging habitat area was observed to be less evenly divided between them.

Application of the criteria scores outlined in the methods section reinforces the importance and sensitivity of the riparian corridors within the study site. The central drainage and riparian woodlands along the northern boundary with the County parcel received the highest scores.

5.3.2 ROLE OF PLANT AND ANIMAL LIFE IN AN ECOSYSTEM

The habitat with the highest ecological value for wildlife onsite is Coast Live Oak and mixed willow riparian, which also serves as the primary roost and nesting location for the white-tailed kite. The riparian and woodland habitats onsite provide essential elements for supporting the lifecycle and reproduction of small mammals and passerine birds, important to the numerous raptors that utilize the site. The riparian and woodlands function as dispersal corridors for small mammals and provide critical connectivity for larger mammals to nearby Atascadero Creek and subsequently, Goleta Slough to the west of the subject property.

Grasslands onsite are recognized for their regional importance for raptors and special-status bird species such as grasshopper sparrow. As discussed in detail in Section 3.1, *Birds*, over the past half century More Mesa has comprised between 25-30% of the *known* WTKI nesting capacity within Goleta Valley and remains an important locale for nesting and roosting WTKI on the South Coast. This is due in large part to the consistently available food source in the grasslands of More Mesa. Further, the diversity of plant and animal habitats, grassland, woodland, riparian, scrubland, bluffs, vernal and seasonal pools, and sandy shores, distinguish the Mesa from other locales. As noted by Fugle and Lehman in 1982, the grasslands of More Mesa provide an unusually large coastal area for foraging and are of great value to the ecosystem. Consistent with the findings of the 1982 study, it is the conclusion of this report that the majority of the grasslands and all of the riparian and oak woodland habitat on More Mesa are sensitive habitat.

5.3.3 WHETHER THE ENVIRONMENTALLY SENSITIVE AREAS COULD BE EASILY DEGRADED BY RESIDENTIAL DEVELOPMENT OR ACTIVITIES ASSOCIATED WITH RESIDENTIAL DEVELOPMENT

With respect to this criteria, it is the extent to which residential development at its fringes directly or indirectly interferes with the environmentally sensitive habitat. For the subject property, white-tailed kite has been established by policies as a critical element in the determination of ESH for the South Coast area. White-tailed kite have been demonstrated to successfully reproduce and maintain populations near to, and in some areas (particularly South America) to expand populations in relation to, development activities (mainly agriculture and its production of easy-to-catch prey). However, a limit exists to this compatibility. As demonstrated by the foraging data, white-tailed kite did not forage in those areas directly adjacent to residential development that were frequently disced for fire hazard management purposes. White-tailed kite necessarily require sufficient acreage within their foraging grounds to maintain populations of forage species and so to successfully nest and fledge young. While it has been illustrated that some urban tolerant kites can nest relatively near to structures and ongoing disturbance activities, as residential use and associated fuel management areas encroach into the foraging area, it decreases the availability of prey and so reduces the potential for continued reproductive success of kites. White-tailed kite were also directly observed to be distracted by recreational users during foraging bouts.

Other important habitat elements at the property such as wetlands and riparian areas are primarily affected by recreational use of those areas and the amount and quality of water that flows into and through them. Wetland and riparian areas can be relatively compatible (namely, not easily degraded) with residential use provided that these factors are adequately controlled. The 100-foot buffer requirement of Policy 9-9 is generally sufficient to minimize the degradation effects of residential development.

Another aspect of the “environmental sensitivity” of the white-tailed kite population on More Mesa is the fact that it has undergone scientific research for several decades, and is potentially the longest continuously studied locale with respect to white-tailed kite. Such long term studies are of scientific value as they are a unique resource against which to measure the effects of change in urbanizing environments. This particular population has also been subject to studies that aid in an understanding of the kite’s life history irrespective of the suburban landscape in which it exists. Also, species that persist in such areas provide a biological resource for understanding adaptation to change and tolerances to human-induced changes in the landscape over extended periods of time. Once access to such a resource is extinguished, such as by conversion of the land to urban uses, it cannot easily be replaced.

5.4 HABITAT SENSITIVITY ANALYSIS FINDINGS

The results of the habitat sensitivity analysis indicate that the majority of the study site is sensitive, primarily because of its function as white-tailed kite nesting and foraging habitat and in accordance with CLUP Policy 9-26 through 9-29. The oak woodlands, riparian habitat, and coastal wetlands are also key habitats that add to the value of this ESH. Figure 5-5 illustrates the final composite score. A score of three or higher indicates the presence of: state rare, state fully protected, state candidate, state species of concern, state special animal or watch list, or CNPS List 1 species; all wetlands; and essential core WTKI foraging, nesting and roosting habitat. The final composite score was used to refine the extent of the environmentally sensitive habitat designation for the site and the extent of developable area relative to biological resources.

As illustrated in the Habitat Sensitivity Analysis results, the majority of the study site meets the criteria for ESH designation:

1. Presence of sensitive species of plants, animals and habitat;
2. Presence of species and habitat considered especially valuable; and
3. The area is easily disturbed or degraded by human activities.

Using results of the Habitat Sensitivity Analysis, the opinion of staff biologists participating in this study, and policy requirements (CLUP policies: 9-9; 9-21; 9-26; 9-27; 9-28; 9-29; and 9-35), two optional recommendations for revising the extent of ESH on More Mesa were developed. These two scenarios reflect the fact that the indirect effects of residential use of a portion of the subject property cannot be precisely determined.

Recommendation I would designate 243 acres of the study area as ESH, allowing for development on up to 21 acres. Figure 5-5 illustrates the areas recommended for designation as ESH under this scenario. This recommendation is conservative in that it protects nearly the entire extent (+/- 3,600 sf) of the area scored as a three or higher. This includes the core WTKI foraging area within the study site, all locations of special-status plants and wildlife, all special-status plant communities and 100% of wetlands plus a 100 ft buffer. The vernal pool in the southeast corner of the property would be buffered from development by 250 ft of ESH. Historic and current nest and roost locations would be buffered from development by a minimum of 475 ft of ESH on the west and 500 ft on the east. This designation would protect most trees onsite. Eucalyptus along a windrow on the southeast boundary of the site would be excluded from ESH. Plant community acreages that would be protected and allowed for development are presented in Table 5.4-1 (following page). Under this scenario, 16.5 acres of grasslands would be excluded from the ESH designation. These grasslands are located along the eastern and western project periphery and as seen in Figures 5-4 and 5-5, are marginal for kite foraging.

Recommendation II would designate 224 acres of the study area as ESH, allowing for development on up to 40 acres, which is allowed under the existing land use designation for this site. This scenario would exclude certain lower value wetlands that lack ecological function and connectivity (with the expectation that under the regulatory agency permit processes that such wetlands would be mitigated for onsite and potentially result in greater value wetlands), and allows for greater encroachment into grasslands within the study site with lower WTKI foraging density. These changes as compared to Recommendation I above were primarily along the western boundary, the north-central knoll, and the north-eastern corner. This scenario protects the majority of the area scored as a three or higher, but would place approximately 0.7 acres of area scored as a three and 0.2 acres of area scored as a four within the developable area. Three wetland areas excluded from ESH designation under Recommendation II are considered of low quality and ecological function. Mitigation for these wetlands through the construction of other onsite wetlands (e.g. vernal pools) would greatly enhance the ecological value of the site as compared with preserving these wetlands in place. Wetlands recommended for exclusion from ESH include PEW 1 and 12, and SSFW 15. PEW 1 (0.12 acres) is largely caused by increased artificial hydrologic input from neighboring agricultural uses. If this artificial source was eliminated or redirected by the offsite land user, this wetland would disappear in the long term. PEW 12 (0.09 acres) is an isolated wetland formed along a man-made trail. This depression is the result of compaction from pedestrian, equestrian, and other recreational use of the trails onsite. During the past year's wet season Vernal Pool Fairy Shrimp surveys this pool was observed as holding water for only about ten days, on two separate occasions. SSFW 15 (0.14 acres) is located in the northeast corner of the study site. This wetland is a remnant of a natural drainage that was redirected along the eastern boundary of the site. SSFW 15 is now an isolated one-parameter wetland. Due to permanent alterations of the landscape the ecological function of this wetland has declined and will continue to decline. As noted above, replacement and mitigation for each of these wetlands would provide greater ecological value for wildlife than preserving these wetlands in place. Similar to Recommendation I, this scenario would buffer the vernal pool in the southeast corner of the site with 250 feet of ESH.

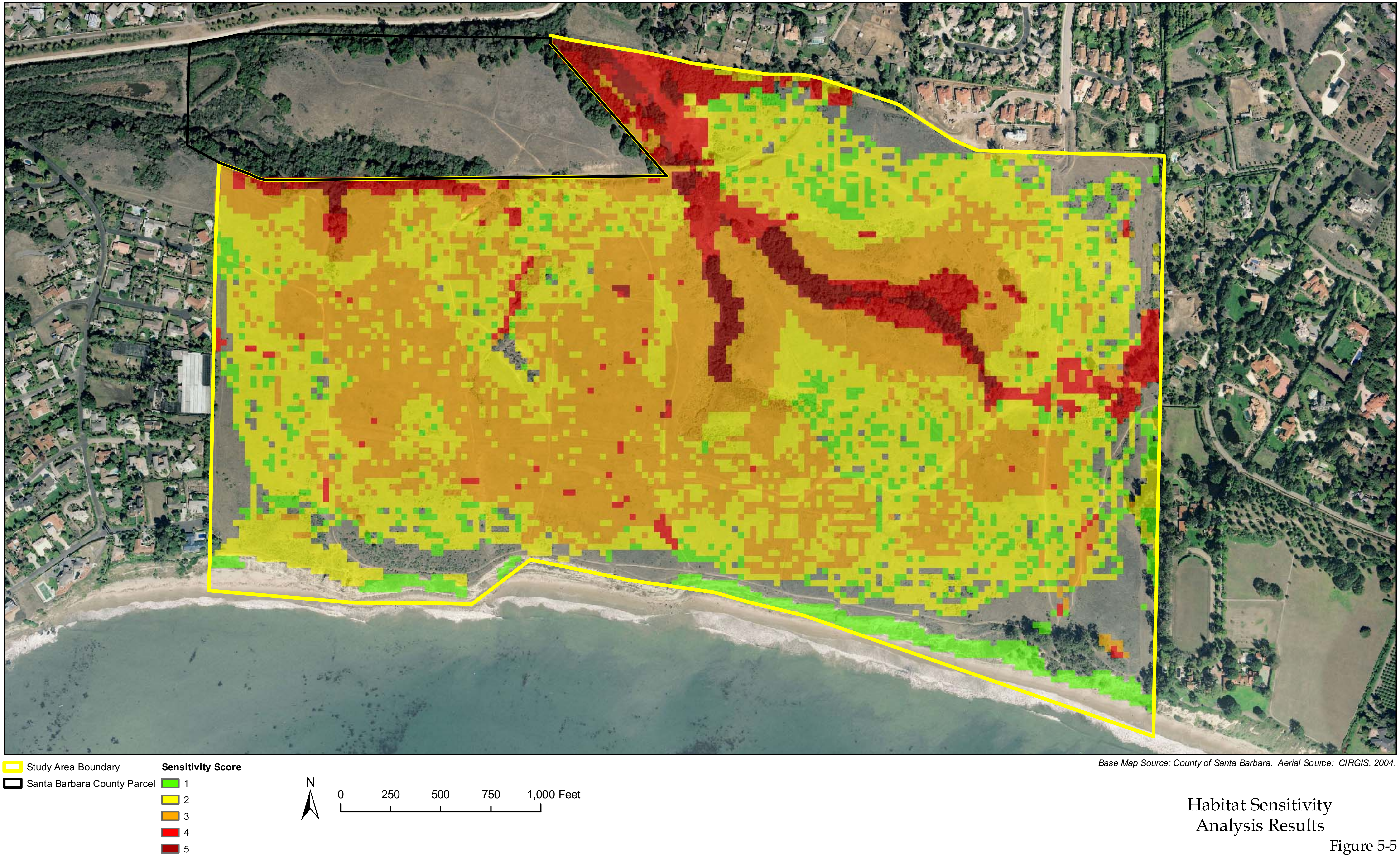
A total of 30 acres of grasslands would be excluded from ESH under this scenario. Similar to Recommendation I, the historic and current nest and roost locations would be buffered from development by a minimum of 475 ft of ESH on the west. As a result of the different value considered for the northeast grassland under this scenario, historic and current nest and roost locations on the east would be buffered from development by a minimum of 175 ft (as compared to 500 feet under Recommendation I), with most of this generalized roost/nest location substantially farther from the development zone. As noted above in Section 5.2, this minimum distance is greater than the 90% percentile tolerance for disturbance zone (170 ft) for urban tolerant nesting kites, and more than 50% (10 of 17 nests) of urban tolerant nest sites were located less than 175 feet from structures.

Table 5.4-1 Plant Community Areas for ESH Recommendations I and II

Plant Community (Series)	Acreage				
	Subject Property	ESH I	Developable Area I	ESH II	Developable Area II
Alkali Heath	2.11	2.1	0.0	2.1	0.0
Brown-headed Rush	0.01	0.0	0.0	0.0	0.0
Bulrush-Cattail	0.31	0.3	0.0	0.3	0.0
California Annual Grassland	64.81	57.0	7.8	52.3	12.5
California Brome	0.09	0.1	0.0	0.1	0.0
California Encelia	3.85	3.8	0.0	3.8	0.0
Coast Live Oak	6.28	6.2	0.1	6.1	0.2
Coastal Bluff	3.40	3.4	0.0	3.4	0.0

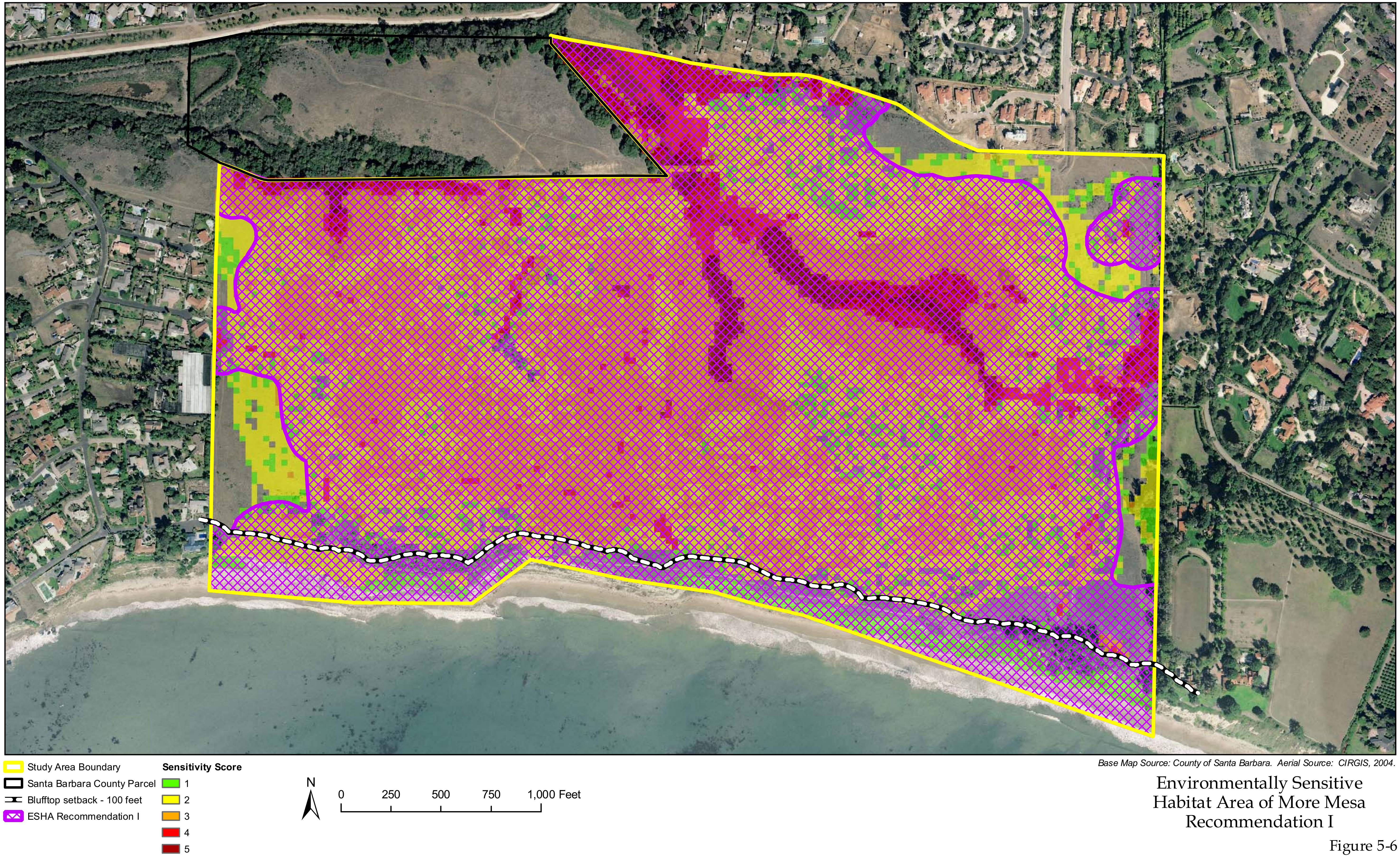
Table 5.4-1 Plant Community Areas for ESH Recommendations I and II

Plant Community (Series)	Acreage				
	Subject Property	ESH I	Developable Area I	ESH II	Developable Area II
Coyote Brush	46.22	44.1	2.1	39.0	7.3
Introduced Perennial Grassland	105.38	96.7	8.7	88.6	16.8
Marsh Baccharis	0.04	0.0	0.0	0.0	0.0
Meadow Barley	0.03	0.0	0.0	0.0	0.0
Mixed Willow	12.25	12.3	0.0	12.1	0.1
Ornamental (includes Eucalyptus)	4.91	3.7	1.2	3.7	1.2
Purple Needlegrass	0.43	0.4	0.0	0.4	0.0
Ruderal	4.62	3.8	0.8	3.1	1.5
Sandy Shore	4.57	4.6	0.0	4.6	0.0
Seacliff Buckwheat	3.38	3.4	0.0	3.4	0.0
Spikerush	0.89	0.9	0.0	0.7	0.2
Total	***263.58***	***242.9***	***20.7***	***223.9***	**39.7**



Habitat Sensitivity Analysis Results

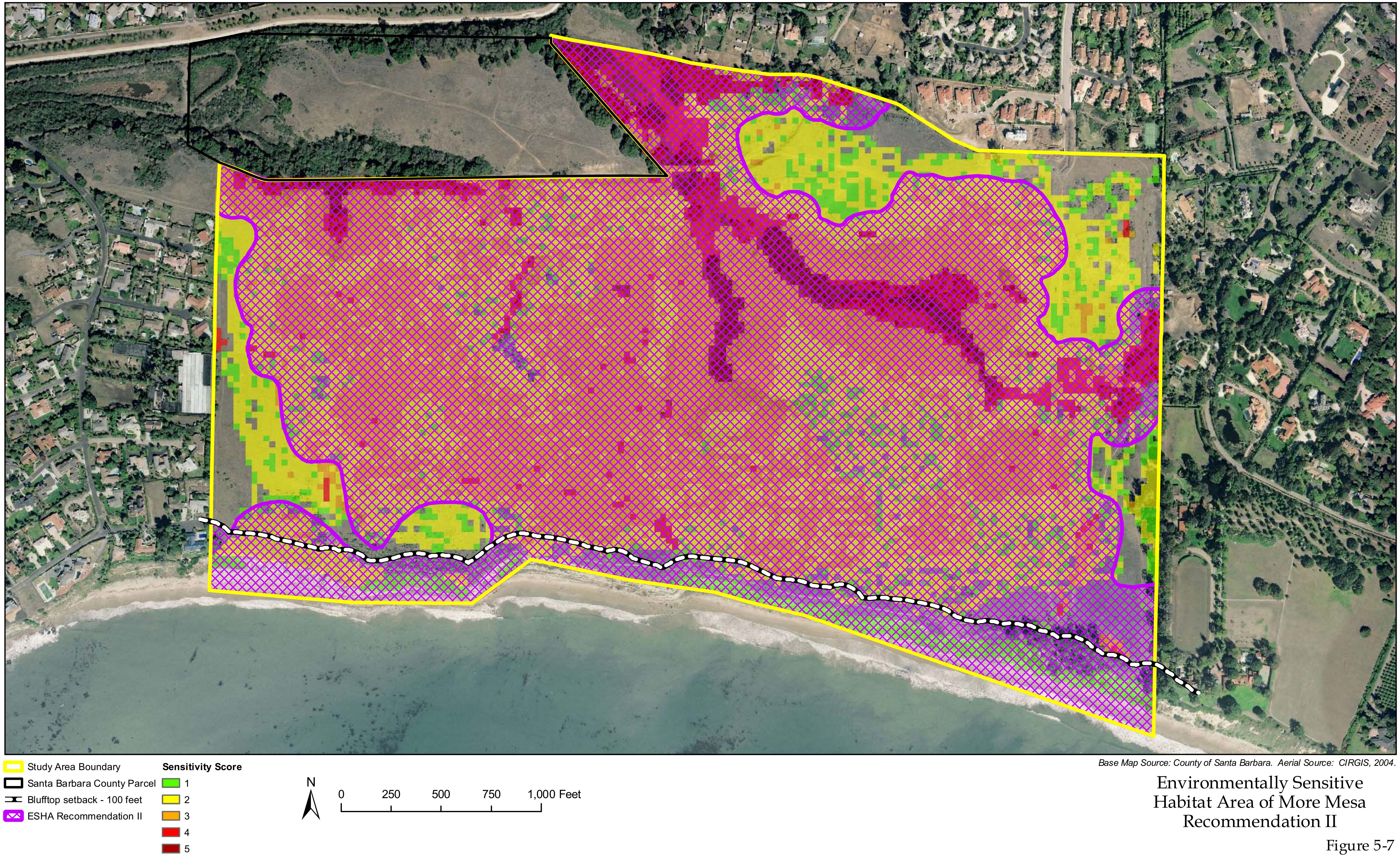
Figure 5-5



Base Map Source: County of Santa Barbara. Aerial Source: CIRGIS, 2004.

Environmentally Sensitive
Habitat Area of More Mesa
Recommendation I

Figure 5-6



Environmentally Sensitive
Habitat Area of More Mesa
Recommendation II

Figure 5-7

SECTION 6 –LAND USE DEVELOPMENT GUIDELINES

Based on the results of the field studies, findings of the habitat sensitivity analysis, and the biological resources within the greater Goleta Valley and Santa Barbara County, the following are feasible, enforceable, and sound development guidelines recommended for the More Mesa property for both ESH Designation Alternative Recommendations I and II.

6.1 GUIDELINES FOR RESIDENTIAL DEVELOPMENT

Density

Nesting white-tailed kite can be tolerant of neighboring development as discussed in Section 5.2. In many instances, this is seemingly irrespective of residential density provided that adequate open space and associated suitable foraging habitat (open grasslands) are nearby. An examination of white-tailed kite nest locations within Goleta Valley indicates that kites will nest within and along the fringes of urban/suburban development as long as adequate open space is available relatively nearby for foraging (Refer to Section 3.1, *Birds*, and Appendix G). For example, one successful nest located in Isla Vista was essentially surrounded by structures (land use zoning of SR-M-18), but was located only about 300 feet from open space. Although this specific nest location is not common, many nests have been found within trees on the edge of development adjacent to or within less than ¾ of a mile of open space in the Goleta Valley (Appendix G). Four nests have been observed in the past decade in the trees on the northern end of Harder Stadium at UCSB, an example of white-tailed kite tolerance to relatively high levels of disturbance provided that its foraging habitat is available. Neighborhoods surrounding More Mesa range in density from one to four units per acre and so are assumed to be a compatible density because of the continued occupation of the mesa by kites. Similarly, several of the other urban tolerant kite nests in Goleta Valley are located adjacent to low density residential development. As the key consideration in maintaining white-tailed kite presence at More Mesa is dependent upon the provision of adequate foraging habitat (including the small mammal populations that provide the food source), the building density within adjacent developable areas appears to be flexible. Because of this, open space is more important than land use density and higher density would be permissible if concomitant increases in open space and so foraging habitat are achieved (namely, higher densities would be associated with Recommendation I as illustrated in Section 5.4 as compared to Recommendation II).

Height

Zoning requirements for Planned Residential Development (PRD) limit building height to thirty-five feet. Most of the residential structures proximate to known white-tailed kite nests are single-story residences, though as indicated by the discussion above, kites have nested near taller structures. Kites nest near the top of dense oak, willow, or other tree stands at usually 20-100 feet above ground in trees that range in height from 10 to 160 feet tall (Dixon et al, 1957), though they also nest in isolated trees. Limiting factors may be associated with the relative height of the nesting tree (and the nest itself) as compared to the nearest adjacent structures and the tree density of the nesting grove, but no specific information is available in this regard. Based on the character of the surrounding open space, heights greater than single-story would seem most appropriate within the core of clustered development rather than at the development edge. No other specific biological issues associated with the onsite ESH are known that establish a height limit on adjacent structures.

Setbacks and Buffers

Setbacks from special-status species, wetlands and white-tailed kite nesting and roosting habitat were largely incorporated into Recommendations I and II for ESH Designation. As described in Section 5, *Habitat Sensitivity*, a measure of white-tailed kite tolerance to disturbance was derived through an analysis of 17 known urban tolerant white-tailed kite nests in the Goleta Valley and 19 nests on More Mesa (Appendix G). With consideration for CLUP policies 9-26 through 9-28 the disturbance levels were categorized as: (1) structural; (2) development (roads, fencing, walls, lawns, and fuel management zone); (3) active recreational use such as equestrian and bicycling (no motorized vehicles); (4) passive recreational use such as walking and bird watching; and (5) no human activity. Disturbance/development buffer guidelines were derived from the distance measurements and the biological opinions of the individuals involved in this study, and are recommended to guide the use and protection of white-tailed kite foraging habitat (Table 6.1-1). The use of the guidelines in Table 6.1-1 is not intended to be absolute and is dependent on the specific design and characteristics of the proposed land use. For instance, it is not the intent of these guidelines to always allow encroachment of fuel management areas to within 265 feet of roost and nest locations, nor is it to require a minimum of 340 feet for fuel management areas in all cases. The primary consideration will be that sufficient, undisturbed forage area is available to meet the needs of white-tailed kites to allow their persistence into the foreseeable future. It is noted that even though white-tailed kite have been recorded nesting very close to structures and disturbance areas within the Goleta Valley (as illustrated in Section 5.2), at some critical juxtaposition of the amount of forage available and the distance to structures and other disturbances, conditions become unsuitable for the continued persistence of nesting and roosting by this species, even by the most urban tolerant individuals of the species. The intent of the recommendations in Section 5.4 and Table 6.1-1 below are to be sufficiently conservative with respect to More Mesa that white-tailed kites would be likely to continue to persist, especially if the area is appropriately managed as discussed under Section 6.2 below.

Table 6.1-1 White-tailed Kite Nest and Roost Locations Buffer Guidelines

Buffer (feet)	Allowed Use	Related CLUP Policy
1 - 125	Minimum area of no human activity	
125-200	Passive recreation [walking and bird watching]	CLUP 9-27 - no development buffer
200-265	Active recreation [equestrian, bicycling - no motorized vehicles]	CLUP 9-27 - no development buffer
265-340	Roads, fencing, walls, lawns, 100 ft. fuel management zone	CLUP 9-28 - minimum setback from development
340-525	Structures	CLUP 9-28 - maximum setback from development sufficient to minimize impacts to nest/roost

Buffers from Development

Structural development could be sited along the ESH boundaries, which have included the appropriate buffers in their design; nonetheless, design considerations should endeavor to increase these buffers' width and soften the ESH edge. This could be achieved with a variety of methods, such as placing access roads adjacent the ESH boundary as compared to residential backyard use areas. Wherever possible, public use areas (roads, trailhead parking, easements, etc.) should be located at the ESH edge rather than private use areas. Swale and tree lined roads, rather than structures, should be used along the periphery to minimize fuel clearance needs within the ESH (if fuel clearance is allowed within the ESH). It is recommended that fuel management zones be located within the residential land use portion of the site, but as noted in Table 6.1-1, a portion of the fuel management zone could be allowed within the ESH provided that at least 265 feet of undisturbed habitat exists from the riparian and oak woodlands that are known historic or current kite nest and roost habitat. Such fuel management, if allowed, within the open space land use would include mowing with a mow height of at least 4-6 inches (as tall as allowed by the Fire Department), but no discing would be permissible. Limited height clearance of grasses can be beneficial for foraging kites based on studies in agricultural lands, but substantial grazing and discing reduces the necessary cover for rodents and decreases small mammal populations. Brush (scrub) removal would also be allowed, but some native brush cover (about 10-15%) would serve to maintain small mammal populations at higher levels. Any fuel clearance or management of vegetation within the ESH should be conducted under a County approved Habitat Management Plan (see below).

Direct access from residential areas into the ESH area should be limited. If residential backyards are located adjacent the ESH, a brick wall of minimum 7-feet height is recommended to discourage such access. No access gates from individual yards should be provided, and the Covenants, Conditions, and Restrictions (CC&Rs) to be established under the Planned Development designation should contain specific prohibitions against such access.

Residential lighting does not appear to directly affect the choice of kite nest locations, but it may indirectly affect the food source as small mammals have been shown to be at least partially night lighting sensitive. No residential outdoor lighting or street lighting above ten feet in height should be allowed, and any outdoor lighting shall be shielded away from the ESH boundaries such that night lighting does not spill into the open space area.

6.2 GUIDELINES FOR OPEN SPACE USE

Habitat Management Plan

More Mesa includes substantial ecological values, as well as aesthetic, recreational, and psychological values that are associated with the presence of open space. Limited recreational use is considered to be compatible with the ESH overlay designation, but any such use would need to be actively managed, preferably as part of a Habitat Management Plan. No formal active habitat management plan has been developed to date or implemented within the property. The lack of such a plan has allowed the exotic and invasive Harding grass to increase its cover throughout the site, such that it has supplanted native species in various locations. This species now dominates seasonal wetland habitat in a number of areas throughout the eastern study area and its continued, unabated spread could eliminate seasonal and vernal pools throughout the site. Further, this species may be a factor contributing to the apparent disappearance of Lemmon's phalaris from the study area. The increased density of Harding grass is suspected to relate to lower small mammal abundances and areas of reduced white-tailed kite foraging. The management of Harding grass is considered integral to protecting the ecological value of More Mesa and thus it should be given specific consideration in the development of guidelines for protecting resources of the site.

Vegetation management of other exotic species at the site is also needed (fennel and radish for instance). The Plan will need to determine the timing of vegetation efforts to avoid disrupting kite nesting and roosting (namely, do not conduct all exotic removals at once; rather determine treatment areas, prioritize, and remove exotics over time).

Other aspects of a Habitat Management Plan would include the allowable recreational use density for specific locations and the locations of specific trail routes and use areas (picnic, trailhead, parking, and sanitary facilities). The location of trail controls in certain areas (ie: split rail fencing, vegetative barriers) should be determined, as well as dog leash policies (dogs should be required to always be on leash, and allowed only on trails and the developed recreational areas on the Mesa). Coastal view picnic areas if proposed should be located at the terminus of Austin Road or adjacent the eucalyptus trees on the east side of the property, but not within 100 feet of the vernal pool.

Public Trail Plan

To focus recreational activities in suitable areas and reduce use in more sensitive areas, it is recommended that a formal trail system be developed with white-tailed kite disturbance tolerance levels used for guidance. As noted in Section 3.1, *Birds*, perched kites were observed flushing due to human presence within 150 feet, foraging kites were rarely observed attempting to capture prey when humans were within 150 feet, and a female was observed flushing from the nest twice due to a human within less than 150 feet of the nest. Although the west pair has nested very near a trail, a general buffer is recommended of up to 125 feet from the nest with no human activity during the nesting season. This would require seasonal closure of any trails within this proximity. It is recommended that existing minor access trails within 125 feet of historic or current nest locations be removed, and that main trails within this distance would be subject to limited use and or seasonal closure. Trails within 125 – 200 feet from nest and roost locations should be limited to walking and bird watching. To encourage the limited use of these trails, interpretive signage should be used to guide visitors throughout the site.

Trail Siting Guidelines

- Route trail through existing degraded areas.
- Align trail along or near existing human-created ecological edges (ie: outside of edge of fuel management area). Do not bisect an existing undisturbed area.
- Avoid known sensitive wildlife areas, but provide view access into such areas.
- Construct trail as narrow as possible to allow access.
- Provide native vegetation screening of sensitive wildlife areas
- Vary the trail horizontal alignment to provide a variety of visual experiences.
- For the main access trails, create distinct alternative plans that maximize different aspects of the site.

SECTION 7 – REFERENCES AND PERSONNEL

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7.2 PERSONNEL

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APPENDIX A

LIST OF VASCULAR PLANT SPECIES OBSERVED ON THE MORE MESA STUDY AREA DURING 2008-2009

Appendix A
List of Vascular Plant Species Observed on the More Mesa Study Area during 2008-2009

Family	Scientific Name	Common Name	Nativity[1] (notes; status)	Wetland Indicator Status [2]
Aceraceae	*Acer negundo*	box elder	N	FACW
Aizoaceae	*Carpobrotus chilensis*	sea fig (ice plant)	NN (cal-ipc - moderate)	NI
Aizoaceae	*Carpobrotus edulis*	hottentot fig (ice plant)	NN (cal-ipc - high)	NI
Aizoaceae	*Tetragonia tetragonioides*	New Zealand Spinach	NN	NI
Anacardiaceae	*Rhus integrifolia*	lemonade berry	N	NI
Anacardiaceae	*Schinus terebinthifolius*	Brazilian pepper tree	NN (cal-ipc - limited)	NI
Anacardiaceae	*Toxicodendron diversilobum*	poison-oak	N	NI
Apiaceae	*Apium graveolens*	wild celery	NN	FACW*
Apiaceae	*Conium maculatum*	poison hemlock	NN (cal-ipc - moderate)	FACW
Apiaceae	***Eryngium vaseyi***	**coyote thistle**	**N (locally rare)**	**FACW**
Apiaceae	*Foeniculum vulgare*	fennel	NN (cal-ipc - high)	FACU
Apiaceae	*Sanciula* crassicaulis	sanicle	N	NI
Apocynaceae	*Vinca major*	periwinkle	NN (cal-ipc - moderate)	NI
Asclepiadaceae	*Asclepias fascicularis*	narrow-leaved milkweed	N	FAC
Asteraceae	*Achillea millefolium*	yarrow	N (introduced from seed mix)	FACU
Asteraceae	*Ambrosia psilostachya*	ragweed	NN	FAC
Asteraceae	*Anthemis cotula*	mayweed	NN	FACU

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Family	Scientific Name	Common Name	Nativity[1] (notes; status)	Wetland Indicator Status [2]
Asteraceae	*Artemisia californica*	California sage brush	N	NI
Asteraceae	*Artemisia douglasiana*	mugwort	N	FACW
Asteraceae	*Baccharis douglasii*	marsh baccharis	N	OBL
Asteraceae	*Baccharis pilularis* var. *consanguinea*	coyote brush	N	NI
Asteraceae	*Baccharis salicifolia*	mule fat	N	NI
Asteraceae	*Carduus pycnocephalus*	Italian thistle	NN (state - c/cal-ipc - moderate)	NI
Asteraceae	*Chamomilla suaveolens*	pineapple weed	NN	NI
Asteraceae	*Conyza bonariensis*	horseweed	NN	NI
Asteraceae	*Conyza canadensis*	horseweed	N	FAC
Asteraceae	*Cotula coronopifolia*	brass buttons	NN (cal-ipc - limited)	FACW+
Asteraceae	*Deinandra fasciculata*	slender tarplant	N	NI
Asteraceae	*Deinandra increscens* ssp. *increscens*	grassland tarplant	N	NI
Asteraceae	*Encelia californica*	California encelia	N	NI
Asteraceae	*Euthamia occidentalis*	western goldenrod	N	OBL
Asteraceae	*Gnaphalium californicum*	California cudweed	N	NI
Asteraceae	*Gnaphalium luteo-album*	cudweed	N	FACW-
Asteraceae	*Hazardia squarrosa* var. *squarrosa*	saw tooth goldenbush	N	NI

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Asteraceae	*Heterotheca grandiflora*	telegraph weed	N	NI
Asteraceae	*Hypochaeris glabra*	smooth cat's ear	NN (cal-ipc - limited)	NI
Asteraceae	*Hypochaeris radicata*	rough cat's ear	NN (cal-ipc - moderate)	NI
Asteraceae	*Isocoma menziesii* var. *vernonoides*	coast goldenbush	N	NI
Asteraceae	*Lactuca serriola*	prickly lettuce	NN	FAC
Asteraceae	*Layia platyglossa*	tidy tips	N (introduced from seed mix)	NI
Asteraceae	*Lessingia filaginifolia* var. *filaginifolia*	corethrogyne	N	NI
Asteraceae	*Madia sativa*	coast tarweed	N	NI
Asteraceae	***Malacothrix saxatilis* var. *saxatilis***	**cliff aster**	**N (CNPS List 4.2)**	**NI**
Asteraceae	*Picris echioides*	prickly ox tongue	NN (cal-ipc - limited)	NI
Asteraceae	*Psilocarphus tenellus* var. *tenellus*	woolly marbles	N	FAC
Asteraceae	*Senecio vulgaris*	common groundsel	NN	NI*
Asteraceae	*Silybum marianum*	milk thistle	NN (cal-ipc - limited)	NI
Asteraceae	*Sonchus asper*	prickly sow-thistle	NN	FAC
Asteraceae	*Sonchus oleraceus*	common sow-thistle	NN	NI*
Asteraceae	*Taraxacum officinale*	common dandelion	NN	FACU
Asteraceae	*Tragopogon porrifoliuis*	salsify	NN	NI

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Family	Scientific Name	Common Name	Nativity[1] (notes; status)	Wetland Indicator Status [2]
Asteraceae	*Xanthium strumarium*	cocklebur	N	FAC+
Boraginaceae	*Amsinckia menziesii* var. *intermedia*	common fiddleneck	N	NI
Boraginaceae	*Amsinckia cf. spectabilis*	seaside fiddleneck	N	FACU
Boraginaceae	*Echium candicans*	pride of Madeira	NN (cal-ipc - limited)	NI
Boraginaceae	*Heliotropium curassavicum*	wild heliotrope	N	OBL
Boraginaceae	***Plagiobothrys undulatus***	**popcorn flower**	**N (locally rare)**	**FACW+**
Brassicaceae	*Allysum maritima*	sweet allysum	NN	NI
Brassicaceae	*Brassica nigra*	black mustard	NN (cal-ipc - moderate)	NI
Brassicaceae	*Cakile maritima*	sea rocket	NN	FACW
Brassicaceae	*Hirschfeldia incana*	summer mustard	NN (cal-ipc - moderate)	NI
Brassicaceae	*Lepidium nitidum* var. *nitidum*	pepper-grass	N	NI
Brassicaceae	*Raphanus sativus*	wild radish	NN (cal-ipc - limited)	NI
Brassicaceae	*Rorippa nasturtium-aquaticum*	watercress	N	OBL
Cactaceae	*Opuntia* sp.	opuntia	NN	NI
Caprifoliaceae	*Sambucus mexicana*	blue elderberry	N	FAC
Caryophyllaceae	*Silene gallica*	windmill pink	NN	NI
Caryophyllaceae	*Spergula arvensis*	sand spurry	NN	NI

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Family	Scientific Name	Common Name	Nativity[1] (notes; status)	Wetland Indicator Status [2]
Caryophyllaceae	*Spergularia bocconii*	sand spurrey	NN	NI
Caryophyllaceae	*Spergularia rubra*	purple sand spurry	NN	FAC-
Chenopodiaceae	*Atriplex lentiformis* ssp. lentiformis (*breweri*)	Brewer's saltbush	N	FAC
Chenopodiaceae	*Atriplex semibaccata*	Australian saltbush	NN (cal-ipc - moderate)	FAC
Chenopodiaceae	*Atriplex triangularis*	spearscale	N	NI
Chenopodiaceae	*Chenopodium album*	white goosefoot	NN	FAC
Chenopodiaceae	*Chenopodium californicum*	California pigweed	N	NI
Chenopodiaceae	*Salicornia virginica*	pickleweed	N	OBL
Chenopodiaceae	*Salsola tragus*	Russian thistle	NN (state - c/cal-ipc - limited)	NI
Convolvulaceae	*Calystegia macrostegia* ssp. *cyclostegia*	coast morning glory	N	NI
Convolvulaceae	*Convolvulus arvensis*	field bindweed	NN (state - c)	NI
Crassulaceae	*Crassula connata*	sand pygmy	N	NI
Cupressaceae	*Cupressus macrocarpa*	Monterey cypress	N (introduced/naturalize	NI
Cyperaceae	*Cyperus eragrostis*	common nutsedge	N	FACW
Cyperaceae	*Eleocharis acicularis*	needle spikerush	N	OBL
Cyperaceae	*Eleocharis macrostachya*	spikerush	N	OBL
Cyperaceae	*Scirpus acutus*	common tule	N	OBL

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Family	Scientific Name	Common Name	Nativity[1] (notes; status)	Wetland Indicator Status [2]
Cyperaceae	*Scirpus maritimus*	bulrush	N	OBL
Dryopteridaceae	*Dryopteris arguta*	wood fern	N	NI
Euphorbiaceae	*Croton californicus*	croton	N	NI
Euphorbiaceae	*Euphorbia lathyris*	caper spurge	NN	NI
Euphorbiaceae	*Ricinus communis*	castor bean	NN (cal-ipc - limited)	FACU
Fabaceae	*Acacia melanoxylon*	black wattle	NN (cal-ipc - limited)	NI
Fabaceae	*Lotus corniculatus*	bird's foot trefoil	NN	FAC
Fabaceae	*Lotus scoparius*	deer weed	N	NI
Fabaceae	*Lupinus bicolor*	Lindley's annual lupine	N	NI
Fabaceae	*Lupinus nanus*	sky lupine	N	NI
Fabaceae	*Lupinus succulentus*	succulent annual lupine	N	NI
Fabaceae	*Medicago polymorpha*	burclover	NN (cal-ipc - limited)	NI
Fabaceae	*Melilotus indica*	Indian melilot	NN	FAC
Fabaceae	*Trifolium hirtum*	rose clover	NN (cal-ipc - moderate)	NI
Fabaceae	*Vicia benghalensis*	purple vetch	NN	NI
Fabaceae	*Vicia villosa* ssp. *villosa*	hairy vetch	NN	NI
Fagaceae	*Quercus agrifolia*	coast live oak	N	NI

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Family	Scientific Name	Common Name	Nativity[1] (notes; status)	Wetland Indicator Status [2]
Frankeniaceae	*Frankenia salina*	alkali heath	N	NI
Geraniaceae	*Erodium botrys*	storksbill filaree	NN	NI
Geraniaceae	*Erodium cicutarium*	red-stemmed filaree	NN (cal-ipc - limited)	NI
Geraniaceae	*Geranium dissectum*	geranium	NN	NI
Hydrophyllaceae	*Nemophila menziesii*	baby blue eyes	N	NI
Hydrophyllaceae	*Phacelia* grandiflora	phacelia	N (introduced from seed mix)	NI
Hydrophyllaceae	*Phacelia tanacetifolia*	annual phacelia	N	NI
Iridaceae	*Sisyrinchium bellum*	blue-eyed grass	N	FAC
Juglandaceae	***Juglans californica* var. *californica***	**Southern California black walnut**	**N (CNPS List 4.2)**	**FAC**
Juncaceae	*Juncus bufonius*	toad rush	N	FACW+
Juncaceae	*Juncus phaeocephalus* var. *phaeocephalus*	brown-headed rush	N	FACW
Juncaceae	*Juncus occidentalis*	rush	N	NI
Lamiaceae	*Marrubium vulgare*	horehound	NN (cal-ipc - limited)	FAC
Liliaceae	*Agave* sp.	agave	NN	NI
Liliaceae	*Brodiaea jolonensis*	Jolon brodiaea	N	NI
Lythraceae	*Lythrum hyssopifolium*	hyssop loosestrife	NN (cal-ipc - limited)	FACW
Malvaceae	*Malva parviflora*	cheese weed	NN	NI

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Family	Scientific Name	Common Name	Nativity[1] (notes; status)	Wetland Indicator Status [2]
Malvaceae	*Malvella leprosa*	alkali mallow	NN (state - c)	FAC*
Myoporaceae	*Myoporum laetum*	myoporum	NN (cal-ipc - moderate)	NI
Myrtaceae	*Eucalyptus camaldulensis*	eucalyptus	NN (cal-ipc - limited)	NI
Myrtaceae	*Eucalyptus globulus*	blue gum eucalyptus	NN (cal-ipc - moderate)	NI
Onagraceae	*Camissonia cheiranthifolia*	dune primrose	N	NI
Onagraceae	*Camissonia micrantha*	small flowered primrose	N	NI
Onagraceae	*Epilobium ciliatum*	willow herb	N	FACW
Oxalildaceae	*Oxalis albicans* ssp. *pilosula*	wood sorrel	N	FACU
Oxalildaceae	*Oxalis pes-caprae*	Bermuda buttercup	NN (cal-ipc - moderate)	NI
Papaveraceae	*Eschscholzia californica*	California poppy	N	NI
Papaveraceae	*Fumaria parviflora*	fumitory	NN	NI
Papaveraceae	*Papaver nudicaule*	Icelandic poppy	NN (introduced from seed mix)	NI
Plantaginaceae	*Plantago coronopus*	cut-leaved plantain	NN	FAC
Plantaginaceae	*Plantago erecta*	California plantain	N	NI
Plantaginaceae	*Plantago lanceolata*	English plantain	NN (cal-ipc - limited)	FAC-
Plantaginaceae	*Plantago major*	broadleaved plantain	NN	FACW-
Platanaceae	*Platanus racemosa*	sycamore	N	FACW

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Family	Scientific Name	Common Name	Nativity[1] (notes; status)	Wetland Indicator Status [2]
Poaceae	***Alopecurus saccatus***	**vernal pool foxtail**	**N (locally rare)**	**OBL**
Poaceae	*Arundo donax*	giant reed	NN (cal-ipc - high)	FACW
Poaceae	*Avena barbata*	slender wild oat	NN (cal-ipc - moderate)	NI
Poaceae	*Brachypodium distachyon*	false brome	NN	NI
Poaceae	*Bromus carinatus* var. *carinatus*	California brome	N	NI
Poaceae	*Bromus diandrus*	ripgut brome	NN (cal-ipc - moderate)	NI
Poaceae	*Bromus hordeaceus*	soft chess	NN (cal-ipc - limited)	FACU-
Poaceae	*Bromus madritensis* ssp. *rubens*	red brome	NN (cal-ipc - high)	NI
Poaceae	*Cortaderia jubata*	pampas grass	NN (cal-ipc - high)	NI
Poaceae	*Crypsis schoenoides*	pricklegrass	NN	OBL
Poaceae	*Cynodon dactylon*	Bermuda grass	NN (state - c/cal-ipc - moderate)	FAC
Poaceae	*Distichlis spicata*	saltgrass	N	FACW
Poaceae	*Echinochloa crus-galli*	barnyard grass	NN	FACW
Poaceae	*Hordeum brachyantherum*	meadow barley	N	FACW
Poaceae	*Hordeum marinum* ssp. *gussoneanum*	Mediterranean barley	NN (cal-ipc - moderate)	NI
Poaceae	*Hordeum murinum* ssp. *leporinum*	barnyard foxtail	NN (cal-ipc - moderate)	NI
Poaceae	*Lamarckia aurea*	goldentop grass	NN	NI

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Family	Scientific Name	Common Name	Nativity[1] (notes; status)	Wetland Indicator Status [2]
Poaceae	*Leymus condensatus*	giant wild rye	N	NI
Poaceae	*Leymus triticoides*	creeping wild rye	N	NI
Poaceae	*Lolium perenne* ssp. *multiflorum*	Italian ryegrass	NN (cal-ipc - moderate)	FAC*
Poaceae	*Nassella pulchra*	purple needle grass	N	NI
Poaceae	*Pennisetum clandestinum*	Kikuyu grass	NN (fed - noxious/state - c/cal-	FACU+
Poaceae	*Phalaris aquatica*	Harding grass	NN (cal-ipc - moderate)	FAC+
Poaceae	*Piptatherum miliaceum*	smilo grass	NN (cal-ipc - limited)	NI
Poaceae	*Poa annua*	annual bluegrass	NN	FACW-
Poaceae	*Polypogon monspeliensis*	rabbitfoot grass	NN (cal-ipc - limited)	FACW+
Poaceae	*Vulpia myuros*	rat-tail fescue	NN (cal-ipc - moderate)	FACU*
Poaceae	*Vulpia octoflora*	six weeks fescue	N	NI
Polemoniaceae	*Gilia tricolor*	gilia	N (introduced from seed mix)	NI
Polygonaceae	*Eriogonum parvifolium*	seacliff buckwheat	N	NI
Polygonaceae	*Polygonum arenastrum*	common knotweed	NN	NI
Polygonaceae	*Rumex acetosella*	sheep sorrel	NN (cal-ipc - moderate)	FAC-
Polygonaceae	*Rumex conglomeratus*	clustered dock	NN	FACW
Polygonaceae	*Rumex crispus*	curly dock	NN (cal-ipc - limited)	FACW-

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Family	Scientific Name	Common Name	Nativity[1] (notes; status)	Wetland Indicator Status [2]
Polygonaceae	*Rumex salicifolia*	willow dock	N	OBL
Portulacaceae	*Calandrinia ciliata*	red maids	N	FACU*
Portulacaceae	*Claytonia perfoliata*	miner's lettuce	N	FAC
Primulaceae	*Anagallis arvensis*	scarlet pimpernel	NN	FAC
Ranunculaceae	*Clematis ligusticifolia*	virgin's bower	N	FAC
Ranunculaceae	*Ranunculus californicus*	California buttercup	N	FAC
Rhamnaceae	*Rhamnus californica*	California coffeeberry	N	NI
Rosaceae	*Heteromeles arbutifolia*	toyon	N	NI
Rosaceae	*Potentilla glandulosa*	cinquefoil	N	FAC
Rosaceae	*Rosa californica*	wild rose	N	FAC+
Rosaceae	*Rubus discolor*	Himalayan blackberry	NN (cal-ipc - high)	FACW*
Rosaceae	*Rubus ursinus*	California blackberry	N	NI
Rubiaceae	*Galium aparine*	bedstraw	NN	FACU
Salicaceae	*Populus balsamifera* ssp. *trichocarpa*	black cottonwood	N	FACW
Salicaceae	*Salix exigua*	sandbar willow	N	OBL
Salicaceae	*Salix laevigata*	red willow	N	NI
Salicaceae	*Salix lasiolepis*	arroyo willow	N	FACW

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Family	Scientific Name	Common Name	Nativity[1] (notes; status)	Wetland Indicator Status [2]
Salicaceae	*Salix lucida* ssp. *lasiandra*	Pacific willow	N	OBL
Sapindaceae	*Dodoneae viscosa*	hopseed bush	NN	NI
Scrophulariaceae	*Castilleja densiflora* ssp. *densiflora*	owl's clover	N	NI
Scrophulariaceae	*Linaria canadensis*	blue toadflax	N	NI
Solanaceae	*Datura wrightii (=D. meteloides)*	Jimson weed	N	NI
Solanaceae	*Nicotiana glauca*	tree tobacco	NN (cal-ipc - moderate)	FAC
Solanaceae	*Solanum nigrum*	black nightshade	NN	FACU
Tamaricaceae	*Tamarix parviflora*	tamarisk	NN	FAC
Tropaeolaceae	*Tropaeolum majus*	nasturtium	NN	NI
Typhaceae	*Typha latifolia*	broad-leaved cat-tail	N	OBL
Urticaceae	*Urtica dioica* ssp. *holosericea*	stinging nettle	N	FACW
Urticaceae	*Urtica urens*	dwarf nettle	NN	NI
Verbenaceae	*Verbena lasiostachys*	western vervain	N	FAC-

[1] N = Native; NN = Non-native; California Invasive Plant Council Rank; California Invasive Ranking

[2] Reed, Porter B. 1988. National List of Plant Species that Occur in Wetlands: California (Region 0). U.S. Fish and Wildlife Service Biological Report 88(26.10). 135 pp.

APPENDIX B

PERCENT VEGETATIVE COVER FIELD DATA SHEETS

Date: 6/4/2008
Observer: KM

Percent Vegetative Cover Field Data Sheet

Species Name	Transect 1: Percent Cover (%) Distance From Start (feet) 0	10	20	30	40	50	60	70	80	90	100	Total % Cover	Percent Cover* (%)
Avena barbata	50	50	20	50	25	40	25	10	20	20		310	28
Bromus diandrus		5	5	5			5	30	25	20	35	130	12
Carduus pycnocephalus						10	25	25	10	10	5	85	8
Hordeum brachyantherum		5	30	20	20	20	20	10	10			135	12
Lactuca serriola											5	5	0
Lolium multiflorum	30	30	30	20	50	15	15	15	15	20	35	275	25
Raphanus sativus						5	5	5	5	20	5	45	4
Sisyrinchium bellum						5						5	0
Vicia villosa	20	10	15	5	5	5	5	5			10	80	7
Vulpia myruos									15	10	5	30	3
Totals	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**1100**	**100**

**Percent Cover = total percent cover/total sampled area (11m^2)*

Date: 6/4/2008
Observer: KM

Percent Vegetative Cover Field Data Sheet

Species Name	Transect 2: Percent Cover (%) *Distance From Start (feet)* 0	10	20	30	40	50	60	70	80	90	100	Total % Cover	Percent Cover* (%)
Ambrosia psilostachys	5		5		5		5	5	5	5		35	3.18
Avena barbata	50	75	70	20	15	50	20	40	40	40	20	440	40.00
Brachypodium distachyon	5	5	5		10	10	20	35	25	10	35	160	14.55
Bromus diandrus	20							5	5	20	15	65	6
Bromus hordeaceus		10		5		5			5		10	35	3
Deinandra increscens ssp. *increscens*										5		5	0
Lolium multiflorum			10		5	20	10	10	20			75	7
Nassella pulchra			5	70	60	5	35	5				180	16
Plantago lanceolata										10	15	25	2
Rumex crispus				5	5	5						15	1
Sisyrinchium bellum							5					5	0
Trifolium hirtum										10		10	1
Vicia villosa							5				5	10	1
Vulpia myuros	20	10	5			5						40	4
Totals	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**1100**	**100**

**Percent Cover = total percent cover/total sampled area (11m ^{2})*

Date: 6/4/2008

Observer: KM

Percent Vegetative Cover Field Data Sheet

Species Name	Transect 3: Percent Cover (%) *Distance From Start (feet)* 0	10	20	30	40	50	60	70	80	90	100	Total % Cover	Percent Cover* (%)
Ambrosia psilostachys			5				10		10			25	2.27
Anagalis arvensis				5								5	0.45
Avena barbata		10								10	10	30	2.73
Baccharis pilularis var. consanguinea				10								10	0.91
Bare Soil										5		5	0.45
Brachypodium distachyon		15	15	10		10						50	4.55
Bromus carinatus var. *carinatus*				5		5	20	10	30	20		90	8.18
Bromus diandrus											10	10	0.91
Bromus diandrus						20		10				30	2.73
Bromus hordeaceus	20									5	10	35	3.18
Carduus pycnocephalus						5	5					10	0.91
Erodium cicutarium								10				10	0.91
Foeniculum vulgare			5	5	10			5			5	30	2.73
Hirschfeldia incana											5	5	0.45
Hypochaeris glabra	5		10	5	5							25	2.27
Lactuca serriola							5					5	0
Lolium multiflorum		20	10	10	20	45	15	20	10	10	10	170	15
Nassella pulchra	30	35	30	35	50	5	20	5				210	19
Phalaris aquatica								5	10			15	1
Plantago laceolata	5	5	5		5							20	2
Rumex acetosella	5							10		15	20	50	5
Sisyrinchium bellum								5	20			25	2
Thatch			10	5								15	1
Trifolium hirtum				5								5	0
Vicia villosa	5			5	10	10	15	10	10	20	20	105	10
Vulpia myuros	30	15	10				10	10	10	15	10	110	10
Totals	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**1100**	**100**

**Percent Cover = total percent cover/total sampled area 11m ^{2})*

Date: 6/4/2008
Observer: KM

Percent Vegetative Cover Field Data Sheet

Species Name	Transect 4: Percent Cover (%) *Distance From Start (feet)* 0	10	20	30	40	50	60	70	80	90	100	Total % Cover	Percent Cover* (%)
Ambrosia psilostachys	5	5					5					15	1.36
Anagalis arvensis								5	5			10	0.91
Avena barbata	10	5	5						5	20	5	50	4.55
Brachypodium distachyon	20	50	50	10	10	50	5	20	30	25	20	290	26.36
Bromus carinatus var. *carinatus*	5											5	0.45
Bromus diandrus	5				5	10			5			25	2.27
Foeniculum vulgare	5	5		5			40	15	10	5	25	110	10.00
Geranium carolinianum						5	15	5	5			30	2.73
Hypochaeris glabra	10											10	0.91
Lolium multiflorum	10	10		5		10		10	10			55	5.00
Lythrum hyssopifolia				5				5				10	0.91
Nassella pulchra				75	75	10	30	25		10		225	20
Plantago lanceolata	10	10	5						5		20	50	5
Sisyrinchium bellum	5	5	5			5						20	2
Trifolium hirtum	5	10	5							35		55	5
Vicia villosa	5				5		5	5	5		5	30	3
Vulpia myuros	5		30		5	10		10	20	5	25	110	10
Totals	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**1100**	**100**

**Percent Cover = total percent cover/total sampled area (11m ^{2})*

Date: 6/4/2008
Observer: KM

Percent Vegetative Cover Field Data Sheet

Species Name	**Transect 5: Percent Cover (%)** *Distance From Start (feet)* 0	10	20	30	40	50	60	70	80	90	100	Total % Cover	Percent Cover* (%)
Avena barbata	50	40	20	50	25	40	25	10	20	20		300	27
Bromus diandrus	10	5	5	5	10		5	30	25	20	35	150	14
Bromus hordeaceus		10			15	5	15	5			5	55	5
Bromus madritensis ssp. *rubens*		10			5	5		5			5	30	3
Carduus pycnocephalus						10	5	5	10	5	5	40	4
Erodium botrys		5	10	5	5		10	5			10	50	5
Hordeum marinum ssp. *gussoneanum*		5		10	5	10	15	10	10			65	6
Hypochaeris glabra	5		5	5				5				20	2
Lolium multiflorum	10	10	15	10	5	5	10	5	10	20	15	115	10
Plantago lanceolata	5		10	5	5	10			5		5	45	4
Raphanus sativus			5			5	5	5	5	20	5	50	5
Sisyrinchium bellum			5			5						10	1
Vicia villosa	20	10	15	5	10	5	5	5		5	10	90	8
Vulpia myruos		5	10	5	15		5	10	15	10	5	80	7
Totals	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**1100**	**100**

**Percent Cover = total percent cover/total sampled area ($11m^2$)*

Date: 6/4/2008
Observer: KM

Percent Vegetative Cover Field Data Sheet

Species Name	Transect 6: Percent Cover (%) *Distance From Start (feet)* 0	10	20	30	40	50	60	70	80	90	100	Total % Cover	Percent Cover* (%)
Anagallis arvensis	5							5				10	1
Baccharis pilularis		10				5	10					25	2
Foeniculum vulgare	5											5	0
Rumex acetosella				5		5						10	1
Phalaris aquatica	85	90	100	95	100	85	85	90	100	100	90	1020	93
Geranium carolinianum	5							5			5	15	1
Vicia villosa							5					5	0
Vulpia myuros						5					5	10	1
Totals	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**1100**	**100**

**Percent Cover = total percent cover/total sampled area ($11m^2$)*

APPENDIX C

WETLAND DETERMINATION DATA FORMS

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: More Mesa City/County: Goleta / Santa Barbara Sampling Date: 5/9/08

Applicant/Owner: Sun Mesa, Inc. State: CA Sampling Point: 1

Investigator(s): Kevin Merk Section, Township, Range: T 4 N R 28 W

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): slight concave Slope (%): —

Subregion (LRR): Mediterranean CA Lat: 34.42 Long: -119.80 Datum: ______

Soil Map Unit Name: Concepcion fine sandy loam 2-9% slopes eroded NWI classification: NONE

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

Are Vegetation —, Soil —, or Hydrology — significantly disturbed? No Are "Normal Circumstances" present? Yes X No ______

Are Vegetation —, Soil —, or Hydrology — naturally problematic? No (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes X	No ______
Hydric Soil Present?	Yes X	No ______
Wetland Hydrology Present?	Yes X	No ______

Is the Sampled Area within a Wetland? Yes X No ______

Remarks: seasonal wetland w/ several co-dominants

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: ______)			
1.			
2. Ø			
3.			
4.			
= Total Cover			
Sapling/Shrub Stratum (Plot size: ______)			
1.			
2. Ø			
3.			
4.			
5.			
= Total Cover			
Herb Stratum (Plot size: 20'x20')			
1. Eleocharis macrostachya	20	Y	OBL
2. Cyperus eragrostis	10	N	FACW
3. Rumex crispus	20	Y	FACW-
4. Polygonum arenastrum	5	N	UPL
5. Lythrum hyssopifolium	25	Y	FACW
6. Psilocarphus tenellus ?	10	N	OBL
7. Pennisetum clandestinum	5	N	FACU+
8. Cynodon dactylon	5	N	FACU+
= Total Cover	100		
Woody Vine Stratum (Plot size: ______)			
1.			
2. Ø			
= Total Cover			

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

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	3	(A)
Total Number of Dominant Species Across All Strata:	3	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	100	(A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = ______

Hydrophytic Vegetation Indicators:

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

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No ______

Remarks: small (< 2%) Juncus bufonius also present. DP characterizes low pt in wetland along fenceline in western portion of site. Fairly weedy along perimeter as it abuts residential & nursery.

SOIL

Sampling Point: 1

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-2"	10yr 3/3							organic/active root zone
2-6"	10yr 3/3	75%	7.5yr 4/8	25%				sandy loam
6-20"	10yr 3/1	90%	gley 2 2.5/5	10%				sandy silty loam

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

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

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

Indicators for Problematic Hydric Soils[3]:

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

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):
Type: unknown
Depth (inches): N/A

Hydric Soil Present? Yes X No ___

Remarks:
hydric soil indicators present

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- X Saturation (A3) below 14"
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- X Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): N/A
Water Table Present? Yes ___ No X Depth (inches): N/A
Saturation Present? (includes capillary fringe) Yes X No ___ Depth (inches): @ 14"

Wetland Hydrology Present? Yes X No ___

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

Remarks:
Runoff from neighboring Nursery drains onto the site & collects @ this location. Natural drainage pattern present & earthen berm across channel further inhibits drainage of topo low area.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: More Mesa City/County: Goleta/Santa Barbara Sampling Date: 5/2/08

Applicant/Owner: Sun Mesa, Inc. State: CA Sampling Point: 2

Investigator(s): K. Merk Section, Township, Range: SEE DP 1

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

Subregion (LRR): Mediterranean CA Lat: 34.42 Long: -119.8 Datum: ____

Soil Map Unit Name: Concepcion fine sandy loam 2-9% slopes NWI classification: none

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

Are Vegetation —, Soil —, or Hydrology — significantly disturbed? No Are "Normal Circumstances" present? Yes X No ____

Are Vegetation —, Soil —, or Hydrology — naturally problematic? No (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes X No ____	Is the Sampled Area within a Wetland?	Yes X No ____
Hydric Soil Present?	Yes X No ____		
Wetland Hydrology Present?	Yes X No ____		

Remarks: seasonal wetland w/dominance of facultative grasses.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2. Ø			
3.			
4.			
= Total Cover			
Sapling/Shrub Stratum (Plot size: ____)			
1.			
2. Ø			
3.			
4.			
5.			
= Total Cover			
Herb Stratum (Plot size: ____)			
1. Lolium perrene ssp. multiflorum	40	Y	FAC*
2. Hordeum marinum ssp. gussoneanum	40	Y	FAC
3. Trifolium hirtum	<5	N	UPL
4. Lythrum hyssopifolium	10	N	FACW
5. Juncus bufonius	5	N	FACW+
6. Eleocharis macrostachya	5	N	OBL
7. Rumex crispus	<5	N	FACW-
8. Plantago lanceolata	<5	N	FAC-
= Total Cover	100		
Woody Vine Stratum (Plot size: ____)			
1.			
2. Ø			
= Total Cover			

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

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

X Dominance Test is >50%

__ Prevalence Index is ≤3.0[1]

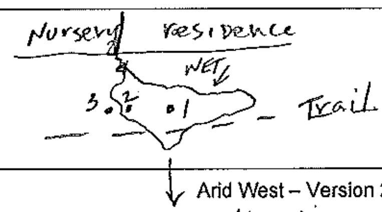
__ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

__ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No ____

Remarks: characterizes upper reach of wetland



Flow direction

SOIL

Sampling Point: 2

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-2"	10yr 3/3							sandy loam / roots
2-20"	10yr 3/2	±80	2.5yr 5/8	±20				some silts & clay inclusions

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

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

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

Indicators for Problematic Hydric Soils[3]:

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

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):
Type: unknown
Depth (inches): N/A

more clay present in deepest part of pit

Hydric Soil Present? Yes X No ___

Remarks:
chroma of 2 + redox features = hydric soil

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- X Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): N/A
Water Table Present? Yes ___ No X Depth (inches): N/A
Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): N/A

Wetland Hydrology Present? Yes X No ___

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

Remarks:
upper edge of wetland supported by neighboring Nursery runoff-

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: More Mesa City/County: Goleta / Santa Barbara Sampling Date: 5/2/08

Applicant/Owner: Sun Mesa Inc State: CA Sampling Point: 3

Investigator(s): K. Merk Section, Township, Range: see DP 1

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

Subregion (LRR): Mediterranean CA Lat: 34.4 Long: -119.8 Datum:

Soil Map Unit Name: Concepcion fine sandy loam - 2-9% slopes NWI classification: none

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

Are Vegetation —, Soil —, or Hydrology — significantly disturbed? No Are "Normal Circumstances" present? Yes X No ___

Are Vegetation —, Soil —, or Hydrology — naturally problematic? No (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes ___ No X	Is the Sampled Area within a Wetland?	Yes ___ No X
Hydric Soil Present?	Yes ___ No X		
Wetland Hydrology Present?	Yes ___ No X		

Remarks:
Upland pt. paired to seasonal wetland

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: ___)			
1.			
2.			
3. Ø			
4.			
= Total Cover			
Sapling/Shrub Stratum (Plot size: ___)			
1.			
2.			
3. Ø			
4.			
5.			
= Total Cover			
Herb Stratum (Plot size: ___)			
1. Hordeum marinum ssp. gussoneanum	10	N	FAC
2. Lolium perenne ssp. multiflorum	15	N	FAC*
3. Erodium botrys	15	N	UPL
4. Avena barbata	30	Y	UPL
5. Vicia villosa ssp. villosa	30	Y	UPL
6.			
7.			
8.			
= Total Cover	100		
Woody Vine Stratum (Plot size: ___)			
1.			
2. Ø			
= Total Cover			

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

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	0	x 1 =
FACW species	0	x 2 =
FAC species	25	x 3 = 75
FACU species	0	x 4 = 0
UPL species	75	x 5 = 375
Column Totals:	100 (A)	450 (B)

Prevalence Index = B/A = 4.5

Hydrophytic Vegetation Indicators:

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

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ___ No X

Remarks:
characterizes upland boundary of wetland on both sides of wet/topographic low area.

SOIL

Sampling Point: 3

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-20"	10 yr 3/3							sandy loam

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

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

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

Indicators for Problematic Hydric Soils[3]:

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

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: UNKNOWN

Depth (inches): N/A

Hydric Soil Present? Yes ___ No X

Remarks:

No hydric soil indicators present

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): N/A

Water Table Present? Yes ___ No X Depth (inches): N/A

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): N/A

Wetland Hydrology Present? Yes ___ No X

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

Remarks:

No observable signs of wetland hydrology

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: More Mesa City/County: Goleta / Santa Barbara Sampling Date: 5/2/08

Applicant/Owner: Sun Mesa Inc State: CA Sampling Point: 4

Investigator(s): K. Merk Section, Township, Range: See DP 1

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

Subregion (LRR): Mediterranean CA Lat: 34.4 Long: -119.8 Datum:

Soil Map Unit Name: Concepcion fine sandy loam 2-9% slopes NWI classification: none

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

Are Vegetation —, Soil —, or Hydrology — significantly disturbed? No Are "Normal Circumstances" present? Yes X No ____

Are Vegetation —, Soil —, or Hydrology — naturally problematic? No (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes X	No ____
Hydric Soil Present?	Yes X	No ____
Wetland Hydrology Present?	Yes X	No ____

Is the Sampled Area within a Wetland? Yes X No ____

Remarks: Seasonal wetland dominated by spikerush, curly dock & flatsedge

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2. Ø			
3.			
4.			
= Total Cover			
Sapling/Shrub Stratum (Plot size: ____)			
1.			
2. Ø			
3.			
4.			
5.			
= Total Cover			
Herb Stratum (Plot size: ____)			
1. Eleocharis macrostachya	25	Y	OBL
2. Rumex crispus	25	Y	FACW-
3. Cyperus eragrostis	30	Y	FACW
4. Lythrum hyssopifolium	15	N	FACW
5. Hordeum marinum ssp. gussoneanum	5	N	FAC
6. Heliotropium curassavicum	<5	N	OBL
7. Lolium perenne ssp. multiflorum	<5	N	FAC*
8. Phalaris aquatica	<5	N	FAC+
Pennisetum clandestinum <5 FACU+			
= Total Cover	100		
Woody Vine Stratum (Plot size: ____)			
1.			
2. Ø			
= Total Cover			

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

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

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

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No ____

Remarks:
DP. characterizes wetland within drainage channel downstream from earthen berm placed across drainage channel. Further downstream channel vanishes into a "sea" of Phalaris,

SOIL

Sampling Point: 4

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-2"	10YR 3/3							sandy loam
2-18"	10yr 3/2		2.5 yr 4/8	±20				
			gley 1 2.5/n	<5				

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

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

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

Indicators for Problematic Hydric Soils[3]:

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

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: unknown

Depth (inches): N/A

Hydric Soil Present? Yes X No ___

Remarks:

chroma of 2 w/ redox features = hydric soil

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): N/A

Water Table Present? Yes ___ No X Depth (inches): N/A

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): N/A

Wetland Hydrology Present? Yes X No ___

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

Remarks:

earthen berm separates channel from wetland characterized by DPs 1 & 2

wetland

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: More Mesa City/County: Goleta / Santa Barbara Sampling Date: 5/2/08

Applicant/Owner: Sun Mesa Inc State: CA Sampling Point: 5

Investigator(s): K. Merk Section, Township, Range: see DP 1

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

Subregion (LRR): Mediterranean CA Lat: 34.4 Long: -119.8 Datum:

Soil Map Unit Name: Concepcion fine Sandy loam 2-9% slopes eroded NWI classification:

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

Are Vegetation N, Soil N, or Hydrology N significantly disturbed? No Are "Normal Circumstances" present? Yes X No ____

Are Vegetation N, Soil N, or Hydrology N naturally problematic? No (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes X	No ____	Is the Sampled Area within a Wetland?	Yes X No ____
Hydric Soil Present?	Yes X	No ____		
Wetland Hydrology Present?	Yes X	No ____		

Remarks: Seasonal wetland dominated by facultative grasses

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: ____)			
1.			
2. Ø			
3.			
4.			
= Total Cover			
Sapling/Shrub Stratum (Plot size: ____)			
1.			
2.			
3. Ø			
4.			
5.			
= Total Cover			
Herb Stratum (Plot size: 3'W X ± 500'L)			
1. Hordeum marinum ssp. gussoneanum	50	Y	FAC
2. Malvella leprosa	10	N	FAC*
3. Lolium perenne ssp. multiflorum	20	Y	FAC*
4. Plantago lanceolata	5	N	FAC-
5. Ambrosia psilostachya	5	N	FAC
6. Geranium carolinianum	10	N	UPL
7. Rumex crispus	<5	N	FACW-
8.			
= Total Cover	100		
Woody Vine Stratum (Plot size: ____)			
1.			
2. Ø			
= Total Cover			

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

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

X Dominance Test is >50%

__ Prevalence Index is ≤3.0[1]

__ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

__ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No ____

Remarks: narrow drainage pattern dominated by Mediterranean barley; Lolium - No OHWM present.

SOIL

Sampling Point: 5

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-4"	10YR 3/2	<100	2.5yr 4/8					sandy loam
4-18"	10YR 2/2	>95	10YR 2/1	<5				

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

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

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

Indicators for Problematic Hydric Soils[3]:

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

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):
Type: unknown
Depth (inches): N/A

Hydric Soil Present? Yes X No ____

Remarks:
Chroma of 2 w/ redox features = hydric soil

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- __ Surface Water (A1)
- __ High Water Table (A2)
- __ Saturation (A3)
- __ Water Marks (B1) (**Nonriverine**)
- __ Sediment Deposits (B2) (**Nonriverine**)
- __ Drift Deposits (B3) (**Nonriverine**)
- __ Surface Soil Cracks (B6)
- __ Inundation Visible on Aerial Imagery (B7)
- __ Water-Stained Leaves (B9)
- __ Salt Crust (B11)
- __ Biotic Crust (B12)
- __ Aquatic Invertebrates (B13)
- __ Hydrogen Sulfide Odor (C1)
- X Oxidized Rhizospheres along Living Roots (C3)
- __ Presence of Reduced Iron (C4)
- __ Recent Iron Reduction in Tilled Soils (C6)
- __ Thin Muck Surface (C7)
- __ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present? Yes ____ No X Depth (inches): N/A
Water Table Present? Yes ____ No X Depth (inches): N/A
Saturation Present? (includes capillary fringe) Yes ____ No X Depth (inches): N/A

Wetland Hydrology Present? Yes X No ____

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

Remarks:
DP characterizes low pt. in drainage pattern - swale-like in this area. ± 3' wide bed between wetland area identified by DP 4

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: More Mesa City/County: Goleta/Santa Barbara Sampling Date: 5/2/08

Applicant/Owner: Sun Mesa Inc. State: CA Sampling Point: 6

Investigator(s): R. Merk Section, Township, Range: T4N, R28W

Landform (hillslope, terrace, etc.): slight slope on terrace Local relief (concave, convex, none): ______ Slope (%): ______

Subregion (LRR): Mediterranean CA Lat: 34.4 Long: -119.8 Datum: ______

Soil Map Unit Name: Concepcion fine sandy loam 2-9% slopes eroded NWI classification: none

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

Are Vegetation —, Soil —, or Hydrology — significantly disturbed? No Are "Normal Circumstances" present? Yes X No ____

Are Vegetation —, Soil —, or Hydrology — naturally problematic? No (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes ____	No X
Hydric Soil Present?	Yes ____	No X
Wetland Hydrology Present?	Yes ____	No X

Is the Sampled Area within a Wetland? Yes ____ No X

Remarks:
Upland pt. paired w/ seasonal wetland w/in drainage area (DP. 5)

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: ____)			
1. Ø			
2.			
3.			
4.			
= Total Cover			
Sapling/Shrub Stratum (Plot size: ____)			
1. Ø			
2.			
3.			
4.			
5.			
= Total Cover			
Herb Stratum (Plot size: ____)			
1. Phalaris aquatica	35	Y	FAC+
2. Foeniculum vulgare	15	N	FACU
3. Bromus diandrus	20	Y	UPL
4. Avena barbata	30	Y	UPL
5.			
6.			
7.			
8.			
= Total Cover	100		
Woody Vine Stratum (Plot size: ____)			
1. Ø			
2.			
= Total Cover			

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

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 33 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	35	x 3 =	105
FACU species	15	x 4 =	60
UPL species	50	x 5 =	250
Column Totals:	100 (A)		415 (B)

Prevalence Index = B/A = 4.15

Hydrophytic Vegetation Indicators:

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

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ____ No X

Remarks:
characterizes upland habitat adjacent to drainage swale.

SOIL

Sampling Point: 6

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-18"	10YR 3/3							sandy loam

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

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

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

Indicators for Problematic Hydric Soils[3]:

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

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: unknown

Depth (inches): N/A

Hydric Soil Present? Yes ___ No X

Remarks:

No hydric soil indicators present

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): N/A

Water Table Present? Yes ___ No X Depth (inches): N/A

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): N/A

Wetland Hydrology Present? Yes ___ No X

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

Remarks:

No wetland hydrology indicators observed.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Mone Mesa City/County: Goleta / Santa Barbara Sampling Date: 5/2/08

Applicant/Owner: Sun Mesa Inc State: CA Sampling Point: 7

Investigator(s): K. Merk Section, Township, Range: T4N R28W

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

Subregion (LRR): Mediterranean CA Lat: 34.4 Long: -119.8 Datum: ______

Soil Map Unit Name: Concepcion fine sandy loam 2-9% slopes eroded NWI classification: none

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

Are Vegetation —, Soil —, or Hydrology — significantly disturbed? No Are "Normal Circumstances" present? Yes X No ______

Are Vegetation —, Soil —, or Hydrology — naturally problematic? No (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes X No ______	Is the Sampled Area within a Wetland? Yes ✓ No ______
Hydric Soil Present?	Yes X No ______	
Wetland Hydrology Present?	Yes X No ______	

Remarks:
Documents seasonal wetland dominated by facultative grasses.

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: ______)			
1.			
2. Ø			
3.			
4.			
= Total Cover			
Sapling/Shrub Stratum (Plot size: ______)			
1.			
2. Ø			
3.			
4.			
5.			
= Total Cover			
Herb Stratum (Plot size: ______)			
1. Lolium perenne ssp. multiflorum	40	Y	FAC*
2. Hordeum marinum ssp. gussoneanum	35	Y	FAC
3. Rumex crispus	15	N	FACW-
4. Malvella leprosa	10	N	FAC*
5. Plantago lanceolata	<5	N	FAC-
6.			
7.			
8.			
= Total Cover	100		
Woody Vine Stratum (Plot size: ______)			
1.			
2. Ø			
= Total Cover			

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

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = ______

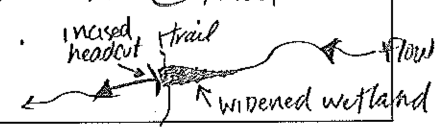
Hydrophytic Vegetation Indicators:

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

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ______ No ______

Remarks:
wet area dominated by Mediterranean barley widens @ trail before spilling into more incised drainage channel. (Foot traffic may help w/increased wet area.)



SOIL

Sampling Point: 7

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-4"	10yr 3/2		2.5yr 4/8	30				sandy loam
4-16"	10yr 2/1		2.5yr 4/8	10				
			gley 1 2.5/n	<5				increased silts & clay inclusions

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

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

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

Indicators for Problematic Hydric Soils[3]:

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

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: unknown

Depth (inches): N/A

Hydric Soil Present? Yes X No ___

Remarks:

low chroma (2:1) w/ redox features = hydric soil

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- X Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present?	Yes ___	No X	Depth (inches): N/A
Water Table Present?	Yes ___	No X	Depth (inches): N/A
Saturation Present? (includes capillary fringe)	Yes ___	No X	Depth (inches): N/A

Wetland Hydrology Present? Yes X No ___

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

Remarks:

natural drainage pattern bisected by foot trail appears to aid in spread (lateral) of surface flow before headcut ± 50' further downstream

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: More Mesa City/County: Goleta/Santa Barbara Sampling Date: 5/2/08

Applicant/Owner: Sun Mesa Inc State: CA Sampling Point: 8

Investigator(s): K. Merk Section, Township, Range: — SEE DP 1 —

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

Subregion (LRR): Mediterranean CA Lat: — Long: — Datum: —

Soil Map Unit Name: CgE2 - Concepcion fine sandy loam, 15-30% slopes NWI classification: PSSA - Freshwater forested/shrub wetland

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

Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No ___

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

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

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

Remarks: Data point documents drainage ("other waters") and adjacent/associated vegetation.

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: ___)			
1.			
2.			
3. Ø			
4.			
= Total Cover			
Sapling/Shrub Stratum (Plot size: ___)			
1. Sambucus mexicana	20	N	FAC
2. Baccharis pilulosa	35	Y	UPL
3. ~~Rubus ursinus~~			
4.			
5.			
= Total Cover	55		
Herb Stratum (Plot size: ___)			
1.			
2.			
3.			
4.			
5. Ø			
6.			
7.			
8.			
= Total Cover			
Woody Vine Stratum (Plot size: ___)			
1. Rubus ursinus (=R. vitifolius)	20	N	FACW*
2. Toxicodendron diversilobum	25	Y	UPL
= Total Cover	45		

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

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	0	x 1 = 0
FACW species	20	x 2 = 40
FAC species	20	x 3 = 60
FACU species	0	x 4 = 0
UPL species	60	x 5 = 300
Column Totals:	100 (A)	400 (B)

Prevalence Index = B/A = 4

Hydrophytic Vegetation Indicators:

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

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ___ No X

Remarks: Characterizes drainage in western portion of site Identified as → area A1

SOIL

Sampling Point: 8

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

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

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

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

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

Indicators for Problematic Hydric Soils[3]:

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

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):
Type: Unknown
Depth (inches): N/A

Hydric Soil Present? Yes ___ No X

Remarks: No soil pit - veg too dense.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

___ Surface Water (A1)
___ High Water Table (A2)
___ Saturation (A3)
___ Water Marks (B1) **(Nonriverine)**
___ Sediment Deposits (B2) **(Nonriverine)**
___ Drift Deposits (B3) **(Nonriverine)**
___ Surface Soil Cracks (B6)
___ Inundation Visible on Aerial Imagery (B7)
___ Water-Stained Leaves (B9)
___ Salt Crust (B11)
___ Biotic Crust (B12)
___ Aquatic Invertebrates (B13)
___ Hydrogen Sulfide Odor (C1)
___ Oxidized Rhizospheres along Living Roots (C3)
___ Presence of Reduced Iron (C4)
___ Recent Iron Reduction in Tilled Soils (C6)
___ Thin Muck Surface (C7)
___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): N/A
Water Table Present? Yes ___ No X Depth (inches): N/A
Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): N/A

Wetland Hydrology Present? Yes ___ No X

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

Remarks: approximated OHWM based on direct obs. of up + downstream channel ~ $\bar{X}$ = 3'-10'W in this location its 10'W but averages 5' over entire length.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: More Mesa City/County: Goleta/Santa Barbara Sampling Date: 5/2/08

Applicant/Owner: Sun Mesa Inc State: CA Sampling Point: 9

Investigator(s): K. Merk Section, Township, Range: — See DP 1 —

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

Subregion (LRR): Mediterranean CA Lat: — Long: — Datum: —

Soil Map Unit Name: CgC2 - Conception fine sandy loam, 2-9% slopes NWI classification: — None —

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

Are Vegetation —, Soil —, or Hydrology — significantly disturbed? No Are "Normal Circumstances" present? Yes X No ______

Are Vegetation —, Soil —, or Hydrology — naturally problematic? No (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes X	No ______
Hydric Soil Present?	Yes X	No ______
Wetland Hydrology Present?	Yes X	No ______

Is the Sampled Area within a Wetland? Yes X No ______

Remarks: trailside puddle is hydrologically isolated ~~& is not~~

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: ______)			
1.			
2.			
3.			
4.			
= Total Cover			
Sapling/Shrub Stratum (Plot size: ______)			
1.			
2.			
3.			
4.			
5.			
= Total Cover			
Herb Stratum (Plot size: ______) (=H. hystrix)			
1. Hordeum marinum ssp. gussoneanum	60	*Y	FAC
2. Malvella lepresa	20	Y	FAC*
3. perennial ssp. Lolium multiflorum	10	N	FAC*
4. Rumex crispus	10	N	FACW-
5.			
6.			
7.			
8.			
= Total Cover	100		
Woody Vine Stratum (Plot size: ______)			
1. Ø			
2.			
= Total Cover			

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

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = ______

Hydrophytic Vegetation Indicators:

X Dominance Test is >50%

__ Prevalence Index is ≤3.0[1]

__ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

__ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No ______

Remarks: old tire rut along foot trail collects & holds water seasonally. ± 120' x 16' w. Foot traffic also compacts soil

SOIL

Sampling Point: 9

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-16"	10YR 2/1	>90	2.5YR 4/8	<10				clay w/ some sandy loam influence

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

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

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

Indicators for Problematic Hydric Soils[3]:

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

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: Unknown

Depth (inches): N/A

Hydric Soil Present? Yes X No ___

Remarks:

low chroma soil with redox features present = hydric soil

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) **(Nonriverine)**
- ___ Sediment Deposits (B2) **(Nonriverine)**
- ___ Drift Deposits (B3) **(Nonriverine)**
- X Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present?	Yes ___	No X	Depth (inches): N/A
Water Table Present?	Yes ___	No X	Depth (inches): N/A
Saturation Present? (includes capillary fringe)	Yes ___	No X	Depth (inches): N/A

Wetland Hydrology Present? Yes X No ___

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

Remarks:

approx 120'x16' area with seasonally ponded water persisting long enough to support wetland plants.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: More Mesa City/County: Goleta / Santa Barbara Sampling Date: 5/2/08

Applicant/Owner: Sun Mesa Inc State: CA Sampling Point: 10

Investigator(s): K. Merk Section, Township, Range: T4N R28W

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

Subregion (LRR): Mediterranean CA Lat: 34.4 Long: -119.8 Datum: ____

Soil Map Unit Name: Concepcion fine sandy loam 2-9% slopes NWI classification: none

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

Are Vegetation –, Soil –, or Hydrology – significantly disturbed? No Are "Normal Circumstances" present? Yes X No ____

Are Vegetation –, Soil –, or Hydrology – naturally problematic? No (If needed, explain any answers in Remarks.)

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

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

Remarks:
paired upland point w/ seasonal wetland @ DP 9

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: ____)			
1–4. Ø			
		= Total Cover	
Sapling/Shrub Stratum (Plot size: ____)			
1–5. Ø			
		= Total Cover	
Herb Stratum (Plot size: ____)			
1. Bromus diandrus	15	N	UPL
2. Avena barbata	35	Y	UPL
3. Erodium botrys	15	N	UPL
4. Hordeum marinum ssp. gussoneanum	15	N	FAC
5. Lolium perenne ssp. multiflorum	10	N	FAC*
6. Vicia villosa ssp. villosa	10	N	UPL
7.			
8.			
	100	= Total Cover	
Woody Vine Stratum (Plot size: ____)			
1–2. Ø			
		= Total Cover	

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

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	0	x 1 = 0
FACW species	0	x 2 = 0
FAC species	25	x 3 = 75
FACU species	0	x 4 = 0
UPL species	75	x 5 = 375
Column Totals:	100 (A)	450 (B)

Prevalence Index = B/A = 4.5

Hydrophytic Vegetation Indicators:

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

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ____ No X

Remarks:
upland non-native annual grassland just off trail

SOIL

Sampling Point: 10

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-20	10YR 3/2							sandy loam

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

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

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

Indicators for Problematic Hydric Soils[3]:

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

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):
Type: UNKNOWN
Depth (inches): N/A

Hydric Soil Present? Yes ___ No X

Remarks:
No hydric soil indicators

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

___ Surface Water (A1)
___ High Water Table (A2)
___ Saturation (A3)
___ Water Marks (B1) **(Nonriverine)**
___ Sediment Deposits (B2) **(Nonriverine)**
___ Drift Deposits (B3) **(Nonriverine)**
___ Surface Soil Cracks (B6)
___ Inundation Visible on Aerial Imagery (B7)
___ Water-Stained Leaves (B9)
___ Salt Crust (B11)
___ Biotic Crust (B12)
___ Aquatic Invertebrates (B13)
___ Hydrogen Sulfide Odor (C1)
___ Oxidized Rhizospheres along Living Roots (C3)
___ Presence of Reduced Iron (C4)
___ Recent Iron Reduction in Tilled Soils (C6)
___ Thin Muck Surface (C7)
___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): N/A
Water Table Present? Yes ___ No X Depth (inches): —
Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): —

Wetland Hydrology Present? Yes ___ No X

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

Remarks:
None observed

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Nore Mesa City/County: Goleta / Santa Barbara Sampling Date: 5/2/08
Applicant/Owner: Sun Mesa Inc State: CA Sampling Point: 11
Investigator(s): K. Merk Section, Township, Range: T4N R28W
Landform (hillslope, terrace, etc.): ______ Local relief (concave, convex, none): slight Slope (%): ______
Subregion (LRR): Mediterranean CA Lat: 34.4 Long: -119.8 Datum: ______
Soil Map Unit Name: Concepcion fine Sandy loam 2-9% slopes eroded NWI classification: none
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ______ (If no, explain in Remarks.)
Are Vegetation –, Soil –, or Hydrology – significantly disturbed? No Are "Normal Circumstances" present? Yes X No ______
Are Vegetation –, Soil –, or Hydrology – naturally problematic? No (If needed, explain any answers in Remarks.)

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

	Yes	No
Hydrophytic Vegetation Present?	X	
Hydric Soil Present?		X
Wetland Hydrology Present?	X	

Is the Sampled Area within a Wetland? Yes ______ No X

Remarks:
Data point characterizes mesic swale - only 2 parameters present within approx. 3' wide drainage area

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: ______)			
1.			
2. Ø			
3.			
4.			
= Total Cover			
Sapling/Shrub Stratum (Plot size: ______)			
1.			
2. Ø			
3.			
4.			
5.			
= Total Cover			
Herb Stratum (Plot size: ______)			
1. Hordeum marinum ssp gussoneanum	25	Y	FAC
2. Lolium perenne ssp. multiflorum	25	Y	FAC*
3. Bromus diandrus	15	N	UPL
4. Erodium botrys	15	N	UPL
5. Vulpia myuros	10	N	UPL
6.			
7.			
8.			
= Total Cover	90		
Woody Vine Stratum (Plot size: ______)			
1.			
2. Ø			
= Total Cover			

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

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)
Total Number of Dominant Species Across All Strata: 2 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = ______

Hydrophytic Vegetation Indicators:

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

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No ______

Remarks:
characterizes upper reach of Drainage A3 - area of annual grassland w/in minor topographic swale.

SOIL

Sampling Point: 11

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-20"	10YR 3/2							loamy sand
> 20" (up to ±32")	10YR 4/3							loamy sand grades into clay

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

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

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

Indicators for Problematic Hydric Soils[3]:

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

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: clay

Depth (inches): @ ± 32"

Hydric Soil Present? Yes ___ No X

Remarks:

No hydric soil indicators present

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- __ Surface Water (A1)
- __ High Water Table (A2)
- X Saturation (A3) in Feb. 2009
- __ Water Marks (B1) (**Nonriverine**)
- __ Sediment Deposits (B2) (**Nonriverine**)
- __ Drift Deposits (B3) (**Nonriverine**)
- __ Surface Soil Cracks (B6)
- __ Inundation Visible on Aerial Imagery (B7)
- __ Water-Stained Leaves (B9)
- __ Salt Crust (B11)
- __ Biotic Crust (B12)
- __ Aquatic Invertebrates (B13)
- __ Hydrogen Sulfide Odor (C1)
- __ Oxidized Rhizospheres along Living Roots (C3)
- __ Presence of Reduced Iron (C4)
- __ Recent Iron Reduction in Tilled Soils (C6)
- __ Thin Muck Surface (C7)
- __ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present? Yes X No ___ Depth (inches): 1-2"

Water Table Present? Yes ___ No X Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes X No ___ Depth (inches): @ Surface

Wetland Hydrology Present? Yes X No ___

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

Remarks:

No surface water present in May - subsequent field work in winter 2009 identified 1-2" of water present w/in 3' wide swale

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: More Mesa City/County: Goleta/Santa Barbara Sampling Date: 5/2/08

Applicant/Owner: Sun Mesa Inc State: CA Sampling Point: 12

Investigator(s): K. Merk Section, Township, Range: T4N R28W

Landform (hillslope, terrace, etc.): ______ Local relief (concave, convex, none): slight slope Slope (%): ______

Subregion (LRR): Mediterranean CA Lat: 34.4 Long: -119.8 Datum: ______

Soil Map Unit Name: Conception fine sandy loam 2-9% slopes eroded NWI classification: none

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

Are Vegetation –, Soil –, or Hydrology – significantly disturbed? No Are "Normal Circumstances" present? Yes X No ______

Are Vegetation –, Soil –, or Hydrology – naturally problematic? No (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes X	No ______	Is the Sampled Area within a Wetland? Yes ______ No X
Hydric Soil Present?	Yes ______	No X	
Wetland Hydrology Present?	Yes ______	No X	

Remarks: While dominance of Phalaris aquatica meets wetland vegetation criterion, presence of upland spp. + lack of other indicators illustrates area is upland

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: ______)			
1.			
2. Ø			
3.			
4.			
= Total Cover			
Sapling/Shrub Stratum (Plot size: ______)			
1.			
2.			
3. Ø			
4.			
5.			
= Total Cover			
Herb Stratum (Plot size: ______)			
1.			
2. Phalaris aquatica	80	Y	FAC+
3. Bromus diandrus	10	N	UPL
4. Geranium carolinianum	10	N	UPL
5. Lolium multiflorum	<5	N	FAC*
6.			
7.			
8.			
= Total Cover	100		
Woody Vine Stratum (Plot size: ______)			
1.			
2. Ø			
= Total Cover			

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

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = ______

Hydrophytic Vegetation Indicators:

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

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No ______

Remarks: DP paired w/ DP10 to illustrate change from swale-like area dominated by Mediterranean barley to slight slope w/ dominance of Phalaris aquatica. Associates include more upland spp.

SOIL

Sampling Point: 12

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-20"	10YR3/2							loamy sand

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

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

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

Indicators for Problematic Hydric Soils[3]:

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

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):
Type: unknown
Depth (inches): —

Hydric Soil Present? Yes ___ No X

Remarks:
No hydric soil indicators present

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): N/A
Water Table Present? Yes ___ No X Depth (inches): |
Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): |

Wetland Hydrology Present? Yes ___ No X

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

Remarks:
No indicators of wetland hydrology observed.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: More Mesa City/County: Goleta / Santa Barbara Sampling Date: 5/2/08

Applicant/Owner: Sun Mesa Inc. State: CA Sampling Point: 13

Investigator(s): K. Merk Section, Township, Range: T4N R28W

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

Subregion (LRR): Mediterranean CA Lat: 34.4 Long: -119.8 Datum: ______

Soil Map Unit Name: Concepcion fine sandy loam 2-9% slopes NWI classification: none

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

Are Vegetation –, Soil –, or Hydrology – significantly disturbed? no Are "Normal Circumstances" present? Yes X No ___

Are Vegetation –, Soil –, or Hydrology – naturally problematic? NO (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes ___ No X	Is the Sampled Area within a Wetland? Yes ___ No X
Hydric Soil Present?	Yes ___ No X	
Wetland Hydrology Present?	Yes ___ No X	

Remarks: upland paired point @ seasonal wetland (DP13)

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: ______)			
1.			
2. Ø			
3.			
4.			
= Total Cover			
Sapling/Shrub Stratum (Plot size: ______)			
1.			
2. Ø			
3.			
4.			
5.			
= Total Cover			
Herb Stratum (Plot size: 10'x10')			
1. Avena barbata	20	N	UPL
2. Bromus diandrus	35	Y	UPL
3. Bromus hordeaceus	20	N	FACU-
4. Vulpia myuros	15	N	UPL
5. Plantago lanceolata	10	N	FAC-
6.			
7.			
8.			
= Total Cover	100		
Woody Vine Stratum (Plot size: ______)			
1.			
2. Ø			
= Total Cover			

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

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	0	x 1 =
FACW species	0	x 2 =
FAC species	0	x 3 =
FACU species	30	x 4 = 120
UPL species	70	x 5 = 350
Column Totals:	100 (A)	470 (B)

Prevalence Index = B/A = 4.7

Hydrophytic Vegetation Indicators:

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

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ___ No X

Remarks: characterizes upland veg @ small seasonal wetland (see DP 14)

SOIL

Sampling Point: 13

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-20"	10YR3/2							sandy loam

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

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

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

Indicators for Problematic Hydric Soils[3]:

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

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):
Type: unknown
Depth (inches): N/A

Hydric Soil Present? Yes ______ No X

Remarks:
no hydric soil indicators present

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) **(Nonriverine)**
- ___ Sediment Deposits (B2) **(Nonriverine)**
- ___ Drift Deposits (B3) **(Nonriverine)**
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present? Yes ______ No X Depth (inches): N/A
Water Table Present? Yes ______ No X Depth (inches): -
Saturation Present? (includes capillary fringe) Yes ______ No X Depth (inches): -

Wetland Hydrology Present? Yes ______ No X

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

Remarks:
no indicators of wetland hydrology present. DP located just upslope of minor topographic low area assoc w/ drainage feature

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: More Mesa City/County: Goleta/Santa Barbara Sampling Date: 5/2/08
Applicant/Owner: Sun Mesa Inc. State: CA Sampling Point: 14
Investigator(s): K. Merk Section, Township, Range: T4N R28W
Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): none Slope (%): ______
Subregion (LRR): Mediterranean CA Lat: 34.4 Long: -119.8 Datum: ______
Soil Map Unit Name: Concepcion fine sandy loam 2-9% slopes NWI classification: none
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ______ (If no, explain in Remarks.)
Are Vegetation —, Soil —, or Hydrology — significantly disturbed? No Are "Normal Circumstances" present? Yes X No ______
Are Vegetation —, Soil —, or Hydrology — naturally problematic? No (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes X	No ______
Hydric Soil Present?	Yes X	No ______
Wetland Hydrology Present?	Yes X	No ______

Is the Sampled Area within a Wetland? Yes X No ______

Remarks: seasonal wetland dominated by facultative grasses.

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: ______)			
1.			
2. Ø			
3.			
4.			
= Total Cover			
Sapling/Shrub Stratum (Plot size: ______)			
1.			
2. Ø			
3.			
4.			
5.			
= Total Cover			
Herb Stratum (Plot size: ______)			
1. Lolium perenne ssp. multiflorum	40	Y	FAC*
2. Hordeum marinum ssp gussoneanum	35	Y	FAC
3. Malvella leprosa	15	N	FAC*
4. Rumex crispus	10	N	FACW-
5.			
6.			
7.			
8.			
= Total Cover	100		
Woody Vine Stratum (Plot size: ______)			
1.			
2. Ø			
= Total Cover			

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

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)
Total Number of Dominant Species Across All Strata: 2 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = ______

Hydrophytic Vegetation Indicators:

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

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No ______

Remarks: channel widens & water apparently collects before entering more incised channel.

SOIL

Sampling Point: 14

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-4"	10YR 3/2	>90	2.5YR4/8	<10				sandy loam
4-20"	10YR 2/1	95	2.5YR4/8	5				w/some clay incl.

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

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

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

Indicators for Problematic Hydric Soils[3]:

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

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):
Type: unknown
Depth (inches): N/A

Hydric Soil Present? Yes X No ___

Remarks:
low chroma w/redox features = hydric soil

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- X Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): N/A
Water Table Present? Yes ___ No X Depth (inches): -
Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): -

Wetland Hydrology Present? Yes X No ___

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

Remarks:
natural drainage feature directs seasonal runoff to more incised channel to north.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: More Mesa City/County: Goleta / Santa Barbara Sampling Date: 5/2/08

Applicant/Owner: Sun Mesa Inc. State: CA Sampling Point: 15

Investigator(s): K. Merk Section, Township, Range: T4N R28W

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

Subregion (LRR): Mediterranean CA Lat: 34.4 Long: -119.8 Datum:

Soil Map Unit Name: Concepcion fine sandy loam 2-9% slopes eroded NWI classification: PSSA Freshwater forested/shrub wetland

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

Are Vegetation —, Soil —, or Hydrology — significantly disturbed? No Are "Normal Circumstances" present? Yes X No ___

Are Vegetation —, Soil —, or Hydrology — naturally problematic? No (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes ___ No X	Is the Sampled Area within a Wetland?	Yes ___ No X
Hydric Soil Present?	Yes ___ No X		
Wetland Hydrology Present?	Yes ___ No X		

Remarks:
Data Point documents an "other waters" feature.

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: ___)			
1.			
2. Ø			
3.			
4.			
= Total Cover			
Sapling/Shrub Stratum (Plot size: ___)			
1. Baccharis pilularis	50	Y	UPL
2.			
3.			
4.			
5.			
= Total Cover	50		
Herb Stratum (Plot size: ___)			
1. Lolium perenne ssp. multiflorum	20	N	FAC*
2.			
3.			
4.			
5.			
6.			
7.			
8.			
= Total Cover	20		
Woody Vine Stratum (Plot size: ___)			
1.			
2. Ø			
= Total Cover			

% Bare Ground in Herb Stratum 30 % Cover of Biotic Crust Ø

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	0	x 1 =
FACW species	0	x 2 =
FAC species	20	x 3 = 60
FACU species	0	x 4 =
UPL species	50	x 5 = 250
Column Totals:	70 (A)	310 (B)

Prevalence Index = B/A = 4.43

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

X Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ___ No X

Remarks:
DP characterizes incised drainage channel downstream from headcut.

SOIL

Sampling Point: 15

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

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

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

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

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

Indicators for Problematic Hydric Soils[3]:

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

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: unknown

Depth (inches): N/A

Hydric Soil Present? Yes ___ No X

Remarks:
hydric soil indicators presumed absent based on vegetation & hydrology — veg too dense to access.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) **(Nonriverine)**
- ___ Sediment Deposits (B2) **(Nonriverine)**
- ___ Drift Deposits (B3) **(Nonriverine)**
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): N/A

Water Table Present? Yes ___ No X Depth (inches): N/A

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): N/A

Wetland Hydrology Present? Yes ___ No X

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

Remarks:
No wetland hydrology indicators present
OHWM averages 5'w within defined channel

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: More Mesa City/County: Goleta/Santa Barbara Sampling Date: 5/2/08
Applicant/Owner: Sun Mesa Inc State: CA Sampling Point: ~~[illegible]~~ 16
Investigator(s): K. Merk Section, Township, Range: — See previous DP —
Landform (hillslope, terrace, etc.): Drainage channel Local relief (concave, convex, none): ______ Slope (%): ______
Subregion (LRR): Mediterranean CA Lat: — Long: — Datum: —
Soil Map Unit Name: CgE2 - Conception fine sandy loam, 15-30% slopes NWI classification: PSSA
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ___ (If no, explain in Remarks.)
Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No ___
Are Vegetation N, Soil N, or Hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes X No ___	Is the Sampled Area within a Wetland? Yes X No ___
Hydric Soil Present? (presumed)	Yes X No ___	
Wetland Hydrology Present?	Yes ✓ No ___	

Remarks: Data point documents "other waters" feature and associated wetland habitat.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ______)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2. Salix lasiolepis	35	Y	FACW
3.			
4.			
	35 = Total Cover		
Sapling/Shrub Stratum (Plot size: ______)			
1.			
2. Baccharis pilularis	20	Y	UPL
3.			
4.			
5.			
	20 = Total Cover		
Herb Stratum (Plot size: ______)			
1. perenne ssp.			
2. Lolium multiflorum	20	Y	FAC*
3.			
4.			
5.			
6.			
7.			
8.			
	20 = Total Cover		
Woody Vine Stratum (Plot size: ______)			
1. ∅			
2.			
	___ = Total Cover		

% Bare Ground in Herb Stratum 25 % Cover of Biotic Crust ∅

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)
Total Number of Dominant Species Across All Strata: 3 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: ~66% (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = ______

Hydrophytic Vegetation Indicators:

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

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No ___

Remarks: characterizes willow riparian scrub in channel
Box elder & cottonwood also present in this area — but just outside sample plot.

SOIL

Sampling Point: ~~B~~ 16

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

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

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

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

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

Indicators for Problematic Hydric Soils[3]:

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

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):
Type: Unknown
Depth (inches): N/A

Hydric Soil Present? Yes X No ___

Remarks: Presumed to be hydric based on veg

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- X Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present?	Yes ___	No ✓	Depth (inches): N/A
Water Table Present?	Yes ___	No ✓	Depth (inches): N/A
Saturation Present? (includes capillary fringe)	Yes ___	No ✓	Depth (inches): N/A

Wetland Hydrology Present? Yes X No ___

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

Remarks: Sufficient wetland hydrology indicators.
Also, X OHWM ~ 5'. small drop pools w/ 2-4" of H_2O present

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: More Mesa City/County: Goleta / Santa Barbara Sampling Date: 5/2/08
Applicant/Owner: Sun Mesa Inc. State: CA Sampling Point: 17
Investigator(s): K. Merk Section, Township, Range: T4N R28W
Landform (hillslope, terrace, etc.): Drainage Bed/channel Local relief (concave, convex, none): bed is flat Slope (%): ____
Subregion (LRR): Mediterranean CA Lat: 34.4 Long: -119.8 Datum: ____
Soil Map Unit Name: Concepcion fine Sandy loam 15-30% slopes eroded NWI classification: PSSA
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)
Are Vegetation —, Soil —, or Hydrology — significantly disturbed? No Are "Normal Circumstances" present? Yes X No ____
Are Vegetation —, Soil —, or Hydrology — naturally problematic? No (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes X	No ____	Is the Sampled Area within a Wetland? Yes ____ No X
Hydric Soil Present?	Yes ____	No X	
Wetland Hydrology Present?	Yes X	No ____	

Remarks: Documents lower reach of Drainage A3 = other waters at this location

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: ____)			
1.			
2.			
3. Ø			
4.			
= Total Cover			
Sapling/Shrub Stratum (Plot size: ____)			
1.			
2.			
3. Ø			
4.			
5.			
= Total Cover			
Herb Stratum (Plot size: 10'W channel bottom)			
1. Phalaris aquatica	100	Y	FAC+
2.			
3.			
4.			
5.			
6.			
7.			
8.			
= Total Cover	100		
Woody Vine Stratum (Plot size: ____)			
1.			
2. Ø			
= Total Cover			

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

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)
Total Number of Dominant Species Across All Strata: 1 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

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

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ____ No ____

Remarks: DP characterises drainage bottom dominated by Harding grass. On slopes & surroundings hillsides - Coyote brush dominates. Upstream are occurrences of arroyo Willow. Channel bed would likely support herbaceous wetland plants if Harding grass was removed.

SOIL

Sampling Point: 17

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-16"	10YR3/3							sandy loam
16-24"	10YR3/2							loamy sand

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

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

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

Indicators for Problematic Hydric Soils[3]:

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

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: Unknown

Depth (inches): N/A

Hydric Soil Present? Yes ___ No X

Remarks:
No hydric soil indicators present

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): N/A

Water Table Present? Yes ___ No X Depth (inches): N/A

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): N/A

Wetland Hydrology Present? Yes X No ___

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

Remarks:
characterizes open area of drainage bed dominated by Harding grass – Aver. 3' w OHWM – just upstream from confluence of other drainage segments.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: More Mesa City/County: Goleta/Santa Barbara Sampling Date: 5/2/08
Applicant/Owner: County of Santa Barbara State: CA Sampling Point: 18
Investigator(s): K. Merk Section, Township, Range: —
Landform (hillslope, terrace, etc.): Drainage Local relief (concave, convex, none): concave Slope (%): ______
Subregion (LRR): Mediterranean CA Lat: — Long: — Datum: —
Soil Map Unit Name: CgE2 - Concepcion fine sandy loam, 15-30% slopes NWI classification: PSSA
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ______ (If no, explain in Remarks.)
Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No ______
Are Vegetation N, Soil N, or Hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks: Data point documents "other waters" feature and associated riparian wetland. Corps jurisdiction estimated ± 10' W OHWM = wetland - Waters

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ______)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2. Salix lasiolepis	100	Y	FACW
3.			
4.			
= Total Cover			
Sapling/Shrub Stratum (Plot size: ______)			
1.			
2. Ø			
3.			
4.			
5.			
= Total Cover			
Herb Stratum (Plot size: ______)			
1.			
2.			
3.			
4. Ø			
5.			
6.			
7.			
8.			
= Total Cover			
Woody Vine Stratum (Plot size: ______)			
1.			
2. Ø			
= Total Cover			

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

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)
Total Number of Dominant Species Across All Strata: 1 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = ______

Hydrophytic Vegetation Indicators:

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

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No ______

Remarks: dense cover willow riparian habitat

SOIL

Sampling Point: 18

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

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

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

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

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

Indicators for Problematic Hydric Soils[3]:

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

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: Unknown

Depth (inches): N/A

Hydric Soil Present? Yes X No ___

Remarks:

channel inaccessible in this area; (no pit dug)
Presumed hydric based on veg & pos. wetland hydrology

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) **(Nonriverine)**
- ___ Sediment Deposits (B2) **(Nonriverine)**
- ___ Drift Deposits (B3) **(Nonriverine)**
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

Field Observations: Unknown – inaccessible

Surface Water Present? Yes ___ No ___ Depth (inches): ___

Water Table Present? Yes ___ No ___ Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No ___ Depth (inches): ___

Wetland Hydrology Present? Yes X No ___

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

—

Remarks:

width of channel extrapolated/estimated from/based on observable reaches upstream and downstream of data point.
* OHWM averages 10' W in this location *

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: More Mesa City/County: Goleta/Santa Barbara Sampling Date: 5/2/08
Applicant/Owner: County of Santa Barbara State: CA Sampling Point: 19
Investigator(s): K. Merk Section, Township, Range: —
Landform (hillslope, terrace, etc.): ______ Local relief (concave, convex, none): ______ Slope (%): ______
Subregion (LRR): Mediterranean CA Lat: — Long: — Datum: —
Soil Map Unit Name: CgF2 - Conception fine sandy loam, 15-30% slopes NWI classification: — none —
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)
Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No ____
Are Vegetation N, Soil N, or Hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes ____ No X	Is the Sampled Area within a Wetland? Yes ____ No X
Hydric Soil Present?	Yes ____ No X	
Wetland Hydrology Present?	Yes ____ No X	

Remarks: Upland point paired to drainage (riparian wetland (DP15))

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2. Quercus agrifolia	100	Y	UPL
3.			
4.			
= Total Cover			
Sapling/Shrub Stratum (Plot size: ____)			
1.			
2.			
3. Ø			
4.			
5.			
= Total Cover			
Herb Stratum (Plot size: ____)			
1.			
2.			
3.			
4. Ø			
5.			
6.			
7.			
8.			
= Total Cover			
Woody Vine Stratum (Plot size: ____)			
1. Ø			
2.			
= Total Cover			

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

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: Ø (A)
Total Number of Dominant Species Across All Strata: 1 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: Ø (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

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

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ____ No X

Remarks: characterizes upland habitat adj to willow riparian corridor

SOIL

Sampling Point: 19

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

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

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

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

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

Indicators for Problematic Hydric Soils[3]:

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

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: Unknown

Depth (inches): N/A

Hydric Soil Present? Yes ___ No X

Remarks:

No hydric soil indicators – presumed absent based on topo & veg.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) **(Nonriverine)**
- ___ Sediment Deposits (B2) **(Nonriverine)**
- ___ Drift Deposits (B3) **(Nonriverine)**
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): N/A

Water Table Present? Yes ___ No X Depth (inches): N/A

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): N/A

Wetland Hydrology Present? Yes ___ No X

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

—

Remarks:

none.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: More Mesa City/County: Goleta/Santa Barbara Sampling Date: 5/2/08

Applicant/Owner: County of S.B. State: CA Sampling Point: #20

Investigator(s): K. Merk Section, Township, Range: —

Landform (hillslope, terrace, etc.): Basin Bottomland Local relief (concave, convex, none): none Slope (%): ______

Subregion (LRR): Mediterranean CA Lat: — Long: — Datum: —

Soil Map Unit Name: Ca – Camarillo fine sandy loam NWI classification: PSS/EMC

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

Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No ______

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

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

Hydrophytic Vegetation Present?	Yes X	No ______
Hydric Soil Present? (presumed)	Yes X	No ______
Wetland Hydrology Present?	Yes X	No ______

Is the Sampled Area within a Wetland? Yes X No ______

Remarks:

* Corps wetland waters incl. adj willow habitat where water sits for prolonged period.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ______)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3. Ø			
4.			
	______ = Total Cover		
Sapling/Shrub Stratum (Plot size: ______)			
1.			
2.			
3. Ø			
4.			
5.			
	______ = Total Cover		
Herb Stratum (Plot size: ______)			
1.			
2. Typha latifolia	30	Y	OBL
3.			
4. Scirpus acutus	70	Y	OBL
5.			
6.			
7.			
8.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: ______)			
1. Ø			
2.			
	______ = Total Cover		

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

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = ______

Hydrophytic Vegetation Indicators:

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

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No ______

Remarks:

dense stand in channel.

SOIL

Sampling Point: 20

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

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

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

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

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

Indicators for Problematic Hydric Soils[3]:

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

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: Unknown

Depth (inches): N/A

Hydric Soil Present? Yes X No ___

Remarks:

Presumed Hydric → could not access – too dense

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) **(Nonriverine)**
- ___ Sediment Deposits (B2) **(Nonriverine)**
- ___ Drift Deposits (B3) **(Nonriverine)**
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

Field Observations: unknown - inaccessible

Surface Water Present? Yes ___ No ___ Depth (inches): ___

Water Table Present? Yes ___ No ___ Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No ___ Depth (inches): ___

Wetland Hydrology Present? Yes X No ___

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

—

Remarks:

Sufficient wetland hydrology indicators.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: More Mesa City/County: Goleta/SB Co. Sampling Date: 6/2/08
Applicant/Owner: County of S.B. State: CA Sampling Point: 21
Investigator(s): S. Christopher Section, Township, Range: T4N R28W
Landform (hillslope, terrace, etc.): Drainage Bottomland Local relief (concave, convex, none): Basin Slope (%): ____
Subregion (LRR): Mediterranean CA Lat: 34.4 Long: -119.8 Datum: ____
Soil Map Unit Name: Camarillo fine Sandy loam NWI classification: PEM cH

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)
Are Vegetation N, Soil N, or Hydrology N significantly disturbed? No Are "Normal Circumstances" present? Yes X No ____
Are Vegetation N, Soil N, or Hydrology N naturally problematic? No (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes X No ____	Is the Sampled Area within a Wetland? Yes X No ____
Hydric Soil Present?	Yes X No ____	
Wetland Hydrology Present?	Yes X No ____	

Remarks: Data point documents restored wetland adjacent to Atascadero Ck.

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: ____)			
1. Salix lasiolepis	25	Y	FACW
2. Populus balsamifera ssp.	10	N	FACW
3. trichocarpa			
4.			
= Total Cover	35		
Sapling/Shrub Stratum (Plot size: ____)			
1. Baccharis pilularis	5	N	UPL
2.			
3.			
4.			
5.			
= Total Cover	5		
Herb Stratum (Plot size: ____)			
1. Scirpus acutus	40	Y	OBL
2. Typha latifolia	20	Y	OBL
3.			
4.			
5.			
6.			
7.			
8.			
= Total Cover	60		
Woody Vine Stratum (Plot size: ____)			
1.			
2. Ø			
= Total Cover			

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

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)
Total Number of Dominant Species Across All Strata: 3 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

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

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No ____

Remarks: Characterizes dominance of hydrophytes in this portion of Drainage Area A

SOIL

Sampling Point: 21

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
			no soil pit					

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

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

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

Indicators for Problematic Hydric Soils[3]:

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

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):
Type: unknown
Depth (inches): —

Hydric Soil Present? Presumed Yes X No ___

Remarks:
No soil pit dug; standing water present – dominance of FACW & OBL spp + positive indicators of wetland hydrology = hydric soils presumed

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- X Surface Water (A1)
- ___ High Water Table (A2)
- X Saturation (A3)
- X Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- X Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present? Yes X No ___ Depth (inches): >6"
Water Table Present? Yes X No ___ Depth (inches): >6"
Saturation Present? (includes capillary fringe) Yes X No ___ Depth (inches): @surface

Wetland Hydrology Present? Yes X No ___

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

Remarks:
standing H_2O present – some areas contain Azolla & Lemma. Dense veg throughout w/ green Typha present indicating standing H_2O.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: More Mesa City/County: Goleta/Santa Barbara Sampling Date: 6/2/08

Applicant/Owner: County of S.B. State: CA Sampling Point: 22

Investigator(s): Merk Section, Township, Range: —

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

Subregion (LRR): Mediterranean CA Lat: — Long: — Datum: —

Soil Map Unit Name: Ca – Camarillo fine sandy loam NWI classification: – none –

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

Are Vegetation —, Soil —, or Hydrology — significantly disturbed? No Are "Normal Circumstances" present? Yes X No ______

Are Vegetation —, Soil —, or Hydrology — naturally problematic? No (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes ______ No X	Is the Sampled Area within a Wetland?	Yes ______ No X
Hydric Soil Present? (presumed)	Yes ______ No X		
Wetland Hydrology Present?	Yes ______ No X		

Remarks:
Area is upland – paired w/ DPs 18 & 19

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ______)	Absolute % Cover	Dominant Species?	Indicator Status
1. Ø			
2.			
3.			
4.			
= Total Cover			
Sapling/Shrub Stratum (Plot size: ______)			
1. Ø			
2.			
3.			
4.			
5.			
= Total Cover			
Herb Stratum (Plot size: ______)			
1.			
2. Bromus diandrus	20	Y	UPL
3. B. hordeaceus (= B. mollis)	20	Y	FACU-
4. B. madritensis ssp. rubens	20	Y	UPL
5. Avena barbata	20	Y	UPL
6.			FAC*
7. Picris echioides	10	N	
8.			
= Total Cover	90		
Woody Vine Stratum (Plot size: ______)			
1. Ø			
2.			
= Total Cover			

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

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: 4 (B)

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = ______

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ______ No X

Remarks:
D.P. characterizes road (bare dirt) in between riparian areas
Part of constructed wetland

SOIL

Sampling Point: 22

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

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

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

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

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

Indicators for Problematic Hydric Soils[3]:

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

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):
Type: Unknown
Depth (inches): N/A

Hydric Soil Present? Yes ___ No X

Remarks:
No soil pit @ this location - presumed non-hydric based on plant composition & no hydrology indicators

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

___ Surface Water (A1)
___ High Water Table (A2)
___ Saturation (A3)
___ Water Marks (B1) (**Nonriverine**)
___ Sediment Deposits (B2) (**Nonriverine**)
___ Drift Deposits (B3) (**Nonriverine**)
___ Surface Soil Cracks (B6)
___ Inundation Visible on Aerial Imagery (B7)
___ Water-Stained Leaves (B9)
___ Salt Crust (B11)
___ Biotic Crust (B12)
___ Aquatic Invertebrates (B13)
___ Hydrogen Sulfide Odor (C1)
___ Oxidized Rhizospheres along Living Roots (C3)
___ Presence of Reduced Iron (C4)
___ Recent Iron Reduction in Tilled Soils (C6)
___ Thin Muck Surface (C7)
___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

Field Observations:
Surface Water Present? Yes ___ No X Depth (inches): N/A
Water Table Present? Yes ___ No X Depth (inches): N/A
Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): N/A

Wetland Hydrology Present? Yes ___ No X

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

Remarks:
no hydrology present
indicators of wetland

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: More Mesa City/County: Goleta/Santa Barbara Sampling Date: 6/2/08

Applicant/Owner: County of S.B. State: CA Sampling Point: 23

Investigator(s): [illegible] Section, Township, Range: —

Landform (hillslope, terrace, etc.): Drainage feature Local relief (concave, convex, none): ______ Slope (%): ______

Subregion (LRR): Mediterranean CA Lat: — Long: — Datum: —

Soil Map Unit Name: Cp - Camarillo fine sandy loam NWI classification: PSS/EM

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

Are Vegetation —, Soil —, or Hydrology — significantly disturbed? NO Are "Normal Circumstances" present? Yes X No ______

Are Vegetation —, Soil —, or Hydrology — naturally problematic? NO (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes X	No ______
Hydric Soil Present? (presumed)	Yes X	No ______
Wetland Hydrology Present?	Yes X	No ______
Is the Sampled Area within a Wetland?	Yes X	No ______

Remarks: Data point documents riparian wetland associated w/ "other waters" feature.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ______)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2. Salix lasiolepis	50	Y	FACW
3. S. laevigata	25	Y	FACW
4. Populus balsamifera ssp trichocarpa	25	Y	FACW
	100 = Total Cover		
Sapling/Shrub Stratum (Plot size: ______)			
1.			
2.			
3. Rubus ursinus (=R. vitifolius)	20	N	FACW*
4.			
5.			
	20 = Total Cover		
Herb Stratum (Plot size: ______)			
1.			
2.			
3.			
4.			
5. Ø			
6.			
7.			
8.			
	______ = Total Cover		
Woody Vine Stratum (Plot size: ______)			
1. Ø			
2.			
	______ = Total Cover		

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

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = ______

Hydrophytic Vegetation Indicators:

X Dominance Test is >50%

__ Prevalence Index is ≤3.0[1]

__ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

__ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No ______

Remarks: dense shrub veg precluded access to channel.

SOIL

Sampling Point: ~~[illegible]~~ 23

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

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

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

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

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

Indicators for Problematic Hydric Soils[3]:

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

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):
Type: Unknown
Depth (inches): NA

Hydric Soil Present? Yes X No ___

Remarks:
Presumed hydric based on presence of hydrophytes & presence of wetland hydrology indicators

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) **(Nonriverine)**
- ___ Sediment Deposits (B2) **(Nonriverine)**
- ___ Drift Deposits (B3) **(Nonriverine)**
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

Field Observations:

Possibly veg too dense to see

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

Wetland Hydrology Present? Yes X No ___

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

Remarks:
Drainage feature contains observable OHWM @ trail crossing further downstream – OHWM estimated upstream is @ 10' W w/ dense shrub wetland veg extending outward.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Mora Mesa City/County: Goleta / Santa Barbara Sampling Date: 3/25/09

Applicant/Owner: Sun Mesa Inc. State: CA Sampling Point: 24

Investigator(s): R. Merk Section, Township, Range: T4N R28W

Landform (hillslope, terrace, etc.): drainage feature Local relief (concave, convex, none): convex Slope (%): ____

Subregion (LRR): Mediterranean CA Lat: 34.4 Long: -119.8 Datum: ____

Soil Map Unit Name: Conception fine sandy loam 15-30% slopes NWI classification: – NONE –

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

Are Vegetation –, Soil –, or Hydrology – significantly disturbed? No Are "Normal Circumstances" present? Yes X No ____

Are Vegetation –, Soil –, or Hydrology – naturally problematic? No (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes X No ____	Is the Sampled Area within a Wetland?	Yes X No ____
Hydric Soil Present?	Yes X No ____		
Wetland Hydrology Present?	Yes X No ____		

Remarks: characterizes brown-headed rush dominated wetland w/in & directly abutting drainage feature.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
= Total Cover			
Sapling/Shrub Stratum (Plot size: ____)			
1. Baccharis Pilularis	10		
2.			
3.			
4.			
5.			
= Total Cover	10		
Herb Stratum (Plot size: ____)			
1. Juncus phaeocephalus	90	y	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
= Total Cover	90		
Woody Vine Stratum (Plot size: ____)			
1. Ø			
2.			
= Total Cover			

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

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

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

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No ____

Remarks: Patchy occurrences of brown-headed rush forming dense 90-100% cover "carpets" along drainage. Patches of open & dense coyote brush present in uplands.

SOIL

Sampling Point: 24

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-4"	10YR 3/2	90	2.5YR 4/8	10				sandy loam
4-20"	10YR 3/1	95	2.5YR 4/8	5				same

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

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

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

Indicators for Problematic Hydric Soils[3]:

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

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: unknown

Depth (inches): N/A

Hydric Soil Present? Yes X No ___

Remarks:

low chroma w/ redox = hydric

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- X Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): N/A

Water Table Present? Yes ___ No X Depth (inches): —

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): —

Wetland Hydrology Present? Yes X No ___

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

Remarks:

Juncus phaeocephalus occurs along drainage feature (A2) – directly abutting channel w/ ± 2.5' W OHWM. DP characterizes several small Juncus phaeocephalus patches in vicinity.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: More Mesa City/County: Goleta / Santa Barbara Sampling Date: 3/25/09

Applicant/Owner: Sun Mesa Inc. State: CA Sampling Point: 25

Investigator(s): K. Merk Section, Township, Range: T4N R28W

Landform (hillslope, terrace, etc.): above drainage Local relief (concave, convex, none): ______ Slope (%): ______

Subregion (LRR): Mediterranean CA Lat: ______ Long: ______ Datum: ______

Soil Map Unit Name: Concepcion fine sandy loam 15-30% slopes NWI classification: NONE

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

Are Vegetation —, Soil —, or Hydrology — significantly disturbed? No Are "Normal Circumstances" present? Yes X No ______

Are Vegetation —, Soil —, or Hydrology — naturally problematic? No (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes ______	No X	Is the Sampled Area within a Wetland? Yes ______ No X
Hydric Soil Present?	Yes ______	No X	
Wetland Hydrology Present?	Yes ______	No X	

Remarks: upland paired point w/ seasonal wetland dominated by Juncus (DP24)

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: ______)			
1.			
2. Ø			
3.			
4.			
= Total Cover			
Sapling/Shrub Stratum (Plot size: ______)			
1. Baccharis pilularis	50	Y	UPL
2.			
3.			
4.			
5.			
= Total Cover	50		
Herb Stratum (Plot size: ______)			
1. Bromus diandrus	20	N	UPL
2. Avena barbata	15	N	UPL
3. Brassica nigra	15	N	UPL
4.			
5.			
6.			
7.			
8.			
= Total Cover	50		
Woody Vine Stratum (Plot size: ______)			
1.			
2. 0			
= Total Cover			

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

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	0	x 1 = 0
FACW species	0	x 2 = 0
FAC species	0	x 3 = 0
FACU species	0	x 4 = 0
UPL species	100	x 5 = 500
Column Totals:	100 (A)	500 (B)

Prevalence Index = B/A = 5

Hydrophytic Vegetation Indicators:

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

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ______ No X

Remarks:

SOIL

Sampling Point: 25

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-20"	10YR3/2							sandy loam

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

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

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

Indicators for Problematic Hydric Soils[3]:

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

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: unknown

Depth (inches): N/A

Hydric Soil Present? Yes ___ No X

Remarks:

No hydric soil indicators observed

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): N/A

Water Table Present? Yes ___ No X Depth (inches): -

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): -

Wetland Hydrology Present? Yes ___ No X

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

Remarks:

None present

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: More Mesa City/County: Goleta/Santa Barbara Sampling Date: 3/25/09

Applicant/Owner: Sun Mesa Inc. State: CA Sampling Point: 26

Investigator(s): K. Merk Section, Township, Range: ______

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

Subregion (LRR): Mediterranean Lat: ______ Long: ______ Datum: ______

Soil Map Unit Name: Concepcion fine sandy loam 2-9% slopes NWI classification: ______

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

Are Vegetation ______, Soil ______, or Hydrology ______ significantly disturbed? Are "Normal Circumstances" present? Yes ______ No ______

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

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

Hydrophytic Vegetation Present?	Yes X	No ______
Hydric Soil Present?	Yes ______	No X
Wetland Hydrology Present?	Yes X	No ______

Is the Sampled Area within a Wetland? Yes ______ No X

Remarks:
2 parameters present within drainage feature otherwise. Documents "other waters" ~ 5 feet wide throughout length

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: ______)			
1.			
2. Ø			
3.			
4.			
= Total Cover			
Sapling/Shrub Stratum (Plot size: ______)			
1. Baccharis pilularis	15	N	UPL
2.			
3.			
4.			
5.			
= Total Cover	15		
Herb Stratum (Plot size: ______)			
1. Phalaris aquatica	50	Y	FAC+
2. Anagallis arvensis	10	N	FAC
3. Geranium carolinianum	15	N	UPL
4. Foeniculum vulgare	10	N	UPL
5.			
6.			
7.			
8.			
= Total Cover	85		
Woody Vine Stratum (Plot size: ______)			
1.			
2. 0			
= Total Cover			

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

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = ______

Hydrophytic Vegetation Indicators:

X Dominance Test is >50%

__ Prevalence Index is ≤3.0[1]

__ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

__ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No ______

Remarks:
Area is dominated by Harding grass - most other associates are upland species

SOIL

Sampling Point: 26

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-20"	10YR 3/2							sandy loam

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

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

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

Indicators for Problematic Hydric Soils[3]:

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

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):
Type: unknown
Depth (inches): N/A

Hydric Soil Present? Yes ___ No X

Remarks:
soils trending towards 10YR 3/3 => no hydric indicators present

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present?	Yes ___	No X	Depth (inches): N/A
Water Table Present?	Yes ___	No X	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes ___	No X	Depth (inches):

Wetland Hydrology Present? Yes X No ___

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

Remarks:
narrow drainage averages 5' wide within OHWM

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: More Mesa City/County: Goleta/Santa Barbara Sampling Date: 6/4/08

Applicant/Owner: Sun Mesa Inc State: CA Sampling Point: 27

Investigator(s): Morli Section, Township, Range: —

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

Subregion (LRR): Mediterranean CA Lat: — Long: — Datum: —

Soil Map Unit Name: CgC2 - Concepcion fine sandy loam, 2-9% slopes NWI classification: — None —

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

Are Vegetation —, Soil —, or Hydrology — significantly disturbed? No Are "Normal Circumstances" present? Yes X No ___

Are Vegetation —, Soil —, or Hydrology — naturally problematic? No (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes X	No ___
Hydric Soil Present? (presumed)	Yes X	No ___
Wetland Hydrology Present?	Yes X	No ___

Is the Sampled Area within a Wetland? Yes X No ___

Remarks:
Documents spikerush - Mediterranean barley wetland

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ___)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3. Ø			
4.			
= Total Cover			
Sapling/Shrub Stratum (Plot size: ___)			
1.			
2.			
3. Ø			
4.			
5.			
= Total Cover			
Herb Stratum (Plot size: ___)			
1. Eleocharis macrostachya	35	Y	OBL
2. Hordeum marinum ssp. gussoneanum	25	Y	FAC
3. Lolium multiflorum	30	Y	FAC*
4.			
5.			
6.			
7.			
8.			
= Total Cover	90		
Woody Vine Stratum (Plot size: ___)			
1. Ø			
2.			
= Total Cover			

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

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = ___

Hydrophytic Vegetation Indicators:

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

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No ___

Remarks:
trailside area where tire tracks/foot traffic have compacted soils + formed linear topographic depression supporting hydrophytes

SOIL

Sampling Point: ~~3~~ 27

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

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

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

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

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

Indicators for Problematic Hydric Soils[3]:

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

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: Unknown

Depth (inches): N/A

Hydric Soil Present? Yes X No ___

Remarks:

No soil pit - presumed hydric based on dominance of Eleocharis & obs. @ DPs 9 & 10

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- X Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): N/A

Water Table Present? Yes ___ No X Depth (inches): N/A

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): N/A

Wetland Hydrology Present? Yes X No ___

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

—

Remarks:

Tire rut & foot traffic compact soils & allow seasonal ponding

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: More Mesa City/County: Goleta/Santa Barbara Sampling Date: 6/4/08

Applicant/Owner: Sun Mesa Inc. State: CA Sampling Point: 28

Investigator(s): K. Merk Section, Township, Range: T4N R28W

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

Subregion (LRR): Mediterranean CA Lat: 34.4 Long: -119.8 Datum: ______

Soil Map Unit Name: Concepcion fine sandy loam 2-9% slopes NWI classification: - None -

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

Are Vegetation –, Soil –, or Hydrology – significantly disturbed? No Are "Normal Circumstances" present? Yes X No ______

Are Vegetation –, Soil –, or Hydrology – naturally problematic? No (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes ______ No X	Is the Sampled Area within a Wetland? Yes ______ No X
Hydric Soil Present?	Yes ______ No X	
Wetland Hydrology Present?	Yes ______ No X	

Remarks:
upland paired point to seasonal wetland

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: ______)			
1.			
2. Ø			
3.			
4.			
= Total Cover			
Sapling/Shrub Stratum (Plot size: ______)			
1.			
2. Ø			
3.			
4.			
5.			
= Total Cover			
Herb Stratum (Plot size: ______)			
1. Avena barbata	35	Y	UPL
2. Bromus diandrus	25	Y	UPL
3. Bromus hordeaceus	20	N	FACU
4. Vicia villosa	20	N	UPL
5.			
6.			
7.			
8.			
= Total Cover	100		
Woody Vine Stratum (Plot size: ______)			
1.			
2. 0			
= Total Cover			

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

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	
FACW species	0	x 2 =	
FAC species	0	x 3 =	
FACU species	20	x 4 =	80
UPL species	80	x 5 =	400
Column Totals:	100 (A)		480 (B)

Prevalence Index = B/A = 4.8

Hydrophytic Vegetation Indicators:

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

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ______ No X

Remarks:

SOIL

Sampling Point: 28

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-20"	10YR 3/2							sandy loam

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

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

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

Indicators for Problematic Hydric Soils[3]:

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

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):
Type: unknown
Depth (inches): N/A

Hydric Soil Present? Yes ___ No X

Remarks:
no indicators of hydric soil present

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

___ Surface Water (A1)
___ High Water Table (A2)
___ Saturation (A3)
___ Water Marks (B1) (**Nonriverine**)
___ Sediment Deposits (B2) (**Nonriverine**)
___ Drift Deposits (B3) (**Nonriverine**)
___ Surface Soil Cracks (B6)
___ Inundation Visible on Aerial Imagery (B7)
___ Water-Stained Leaves (B9)
___ Salt Crust (B11)
___ Biotic Crust (B12)
___ Aquatic Invertebrates (B13)
___ Hydrogen Sulfide Odor (C1)
___ Oxidized Rhizospheres along Living Roots (C3)
___ Presence of Reduced Iron (C4)
___ Recent Iron Reduction in Tilled Soils (C6)
___ Thin Muck Surface (C7)
___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

Field Observations:
Surface Water Present? Yes ___ No X Depth (inches): N/A
Water Table Present? Yes ___ No X Depth (inches): |
Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): |

Wetland Hydrology Present? Yes ___ No X

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

Remarks:
No indicators present

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Moore Mesa City/County: Goleta/Santa Barbara Sampling Date: 6/4/08

Applicant/Owner: Sun Mesa Inc. State: CA Sampling Point: ~~28~~ 29

Investigator(s): K. Merk Section, Township, Range: —

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

Subregion (LRR): Mediterranean CA Lat: — Long: — Datum: —

Soil Map Unit Name: CaC2 - Conception fine sandy loam, 2-9% slopes NWI classification: — None —

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

Are Vegetation —, Soil —, or Hydrology — significantly disturbed? No Are "Normal Circumstances" present? Yes X No ____

Are Vegetation —, Soil —, or Hydrology — naturally problematic? No (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes X No ____	Is the Sampled Area within a Wetland?	Yes X No ____
Hydric Soil Present? (presumed)	Yes X No ____		
Wetland Hydrology Present?	Yes X No ____		

Remarks: Spikerush- and Italian ryegrass-dominated seasonal wetland.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2. Ø			
3.			
4.			
= Total Cover			
Sapling/Shrub Stratum (Plot size: ____)			
1.			
2. Ø			
3.			
4.			
5.			
= Total Cover			
Herb Stratum (Plot size: ____)			
1. Eleocharis macrostachya	20	Y	OBL
2. Xanthium strumarium	10	N	FAC+
3. Lolium multiflorum	20	Y	FAC*
4. Lythrum hyssopifolia	5	N	FACW
5. Polypogon monspeliensis	10	N	FACW+
6. Cotula coronopifolia	5	N	FACW+
7. Cynodon dactylon	5	N	FAC
8. Hordeum marinum ssp. guss	10	N	FAC
= Total Cover	85		
Woody Vine Stratum (Plot size: ____)			
1. Ø			
2.			
= Total Cover			

% Bare Ground in Herb Stratum 15 % Cover of Biotic Crust Ø

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

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

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No ____

Remarks: ± linear feature along trail w/ seasonally ponded water, supporting a dominance of wetland plants

SOIL Sampling Point: ~~28~~ 29

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

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

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

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

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

Indicators for Problematic Hydric Soils[3]:

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

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: Unknown

Depth (inches): N/A

Hydric Soil Present? Yes X No ___

Remarks:

Presumed hydric based on dominance of FACW & OBL spp & positive indicators of wetland hydrology - also extrapolated from soils observed @ DP 27,28 & 9,10

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- X Water Marks (B1) **(Nonriverine)**
- ___ Sediment Deposits (B2) **(Nonriverine)**
- ___ Drift Deposits (B3) **(Nonriverine)**
- X Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present?	Yes ___	No X	Depth (inches): N/A
Water Table Present?	Yes ___	No X	Depth (inches): N/A
Saturation Present? (includes capillary fringe)	Yes ___	No X	Depth (inches): N/A

Wetland Hydrology Present? Yes X No ___

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

Remarks:

dog paw prints in dark surface clay layer also present. may contribute to ~~[illegible]~~ erosion on adj. slope of B1 - burrows present. (= Burrow erosion)

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: More Mesa City/County: Goleta / Santa Barbara Sampling Date: 6/4/08

Applicant/Owner: Sun Mesa Inc. State: CA Sampling Point: 30

Investigator(s): K. Merk Section, Township, Range: T4N R28W

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

Subregion (LRR): Mediterranean CA Lat: 34.4 Long: -119.8 Datum: ______

Soil Map Unit Name: Concepcion fine sandy loam 2-9% slopes NWI classification: none

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

Are Vegetation —, Soil —, or Hydrology — significantly disturbed? No Are "Normal Circumstances" present? Yes X No ______

Are Vegetation —, Soil —, or Hydrology — naturally problematic? No (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes ______ No X	Is the Sampled Area within a Wetland?	Yes ______ No X
Hydric Soil Present?	Yes ______ No X		
Wetland Hydrology Present?	Yes ______ No X		

Remarks:
upland paired point @ seasonal wetland

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ______)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2. Ø			
3.			
4.			
	______ = Total Cover		
Sapling/Shrub Stratum (Plot size: ______)			
1.			
2. Ø			
3.			
4.			
5.			
	______ = Total Cover		
Herb Stratum (Plot size: ______)			
1. Avena barbata	Y	30	UPL
2. Bromus diandrus	Y	25	UPL
3. Lolium perenne ssp. multiflorum	N	10	FAC*
4. Hordeum marinum ssp. gussoneanum	N	15	FAC
5. Polypogon arenastrum	N	10	UPL
6. Geranium carolinianum	N	10	UPL
7.			
8.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: ______)			
1.			
2.			
	______ = Total Cover		

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

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	0	x 1 =
FACW species	0	x 2 =
FAC species	25	x 3 = 75
FACU species	0	x 4 =
UPL species	75	x 5 = 375
Column Totals:	100 (A)	450 (B)

Prevalence Index = B/A = 4.5

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ______ No X

Remarks:
characterizes upland annual grassland next to seasonal wetland

SOIL

Sampling Point: 30

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

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

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

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

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

Indicators for Problematic Hydric Soils[3]:

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

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):
Type: unknown
Depth (inches): —

Hydric Soil Present? Yes ___ No X

Remarks:
see data point 28 - presumed non hydric based on veg. & lack of wetland hydrology

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): N/A
Water Table Present? Yes ___ No X Depth (inches): |
Saturation Present? (includes capillary fringe) Yes ___ No ___ Depth (inches): |

Wetland Hydrology Present? Yes ___ No X

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

Remarks:
No indicators present

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Nuove Mesa City/County: Goleta / Santa Barbara Sampling Date: 6/4/08

Applicant/Owner: Sun Mesa Inc. State: CA Sampling Point: 31

Investigator(s): K. Merk Section, Township, Range: ____

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

Subregion (LRR): Mediterranean CA Lat: ____ Long: ____ Datum: ____

Soil Map Unit Name: Concepcion fine Sandy loam/Diablo Clay border NWI classification: none

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

Are Vegetation —, Soil —, or Hydrology — significantly disturbed? No Are "Normal Circumstances" present? Yes X No ____

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

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

Hydrophytic Vegetation Present?	Yes X	No ____	Is the Sampled Area within a Wetland? Yes ____ No X
Hydric Soil Present?	Yes ____	No X	
Wetland Hydrology Present?	Yes X	No ____	

Remarks: Documents small pocket (isolated) seasonal wetland dominated by facultative grasses

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: ____)			
1.			
2. 0			
3.			
4.			
= Total Cover			
Sapling/Shrub Stratum (Plot size: ____)			
1.			
2. 0			
3.			
4.			
5.			
= Total Cover			
Herb Stratum (Plot size: 10x10 ±)			
1. Hordeum marinum ssp gussoneanum	35	y	FAC
2. Lolium multiflorum	50	y	FAC
3. Anagallis arvensis	10	N	FAC
4. Rumex crispus	5	N	FACW-
5.			
6.			
7.			
8.			
= Total Cover	100		
Woody Vine Stratum (Plot size: ____)			
1.			
2. 0			
= Total Cover			

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

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

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

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No ____

Remarks: characterizes small topographic low pt. that holds seasonal surface H_2O.

SOIL

Sampling Point: 31

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR3/2	95						Sandy loam w/some clay
4-20	10YR2/1	100						loam → clay

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

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

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

Indicators for Problematic Hydric Soils[3]:

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

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):
Type: unknown but it turns to clay @ 6-8"
Depth (inches): ______

Hydric Soil Present? Yes ___ No X

Remarks:
- low chroma is typical for Diablo clay. No hydric soil indicators observed.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- X Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): N/A
Water Table Present? Yes ___ No X Depth (inches): ___
Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): ___

Wetland Hydrology Present? Yes X No ___

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

Remarks:
*area revisited in Feb 2009 & 1-2" of surface water was present in @ 7'x7' area (@ trail)

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: More Mesa City/County: Goleta / Santa Barbara Sampling Date: 2/18/09

Applicant/Owner: Sun Mesa, Inc. State: CA Sampling Point: 32

Investigator(s): K. Merk Section, Township, Range: T4N R28W

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

Subregion (LRR): Mediterranean CA Lat: 34.4 Long: -119.8 Datum: ______

Soil Map Unit Name: Diablo Clay 2-9% slopes NWI classification: none

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

Are Vegetation –, Soil –, or Hydrology – significantly disturbed? No Are "Normal Circumstances" present? Yes X No ______

Are Vegetation –, Soil X, or Hydrology – naturally problematic? No (If needed, explain any answers in Remarks.)

Yes - Dark low chroma clay

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

Hydrophytic Vegetation Present?	Yes X No ______	Is the Sampled Area within a Wetland? Yes ______ No X
Hydric Soil Present?	Yes ______ No X	
Wetland Hydrology Present?	Yes X No ______	

Remarks: Documents seasonal wetland - only 2 parameters met at this location

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: ______)			
1.			
2. Ø			
3.			
4.			
= Total Cover			
Sapling/Shrub Stratum (Plot size: ______)			
1.			
2. Ø			
3.			
4.			
5.			
= Total Cover			
Herb Stratum (Plot size: ______)			
1. Phalaris aquatica	60	Y	FAC+
2. Vicia villosa	10	N	UPL
3. Sonchus asper	10	N	
4. Brassica nigra	10	N	UPL
5. Raphanus sativa	10	N	UPL
6.			
7.			
8.			
= Total Cover	100		
Woody Vine Stratum (Plot size: ______)			
1.			
2. Ø			
= Total Cover			

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

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = ______

Hydrophytic Vegetation Indicators:

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

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No ______

Remarks: characterizes small topographic depressions that bisect foot trail forming upper reach of Drainage B1

SOIL

Sampling Point: 32

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-20"	10yr 2/1	100						clay

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

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

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

Indicators for Problematic Hydric Soils[3]:

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

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):
Type: clay throughout
Depth (inches): ______

Hydric Soil Present? Yes ______ No X

Remarks:
Dark low chroma is inherent w/ Diablo clay. No other hydric soil indicators present

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- X Surface Water (A1)
- ___ High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present?	Yes X	No ___	Depth (inches): ± 1"
Water Table Present?	Yes X	No ___	Depth (inches): 8-10"
Saturation Present? (includes capillary fringe)	Yes X	No ___	Depth (inches): ______

Wetland Hydrology Present? Yes X No ______

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

Remarks:
surface water present post-storm event @ 2 small topographic features in upper reach of Drainage B1

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: More Mesa City/County: Santa Barbara Sampling Date: 2/18/09

Applicant/Owner: Sun Mesa Inc. State: CA Sampling Point: 33

Investigator(s): K. Merk Section, Township, Range: T4N R28W

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

Subregion (LRR): Mediterranean CA Lat: 34.4 Long: -119.8 Datum:

Soil Map Unit Name: Diablo Clay 2-9% slopes NWI classification: NONE

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

Are Vegetation —, Soil —, or Hydrology — significantly disturbed? No Are "Normal Circumstances" present? Yes X No ____

Are Vegetation —, Soil *, or Hydrology — naturally problematic? No (If needed, explain any answers in Remarks.)

Low chroma typical w/ Diablo Clay

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

Hydrophytic Vegetation Present?	Yes ____ No X	Is the Sampled Area within a Wetland? Yes ____ No X
Hydric Soil Present?	Yes ____ No X	
Wetland Hydrology Present?	Yes ____ No X	

Remarks: characterizes upland adjacent to seasonal wetland @ DP 32 (paired point)

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: ____)			
1.–4. Ø			
= Total Cover			
Sapling/Shrub Stratum (Plot size: ____)			
1.–5. Ø			
= Total Cover			
Herb Stratum (Plot size: ____)			
1. Phalaris aquatica	20	N	FAC+
2. Vicia villosa	45	Y	UPL
3. Raphanus sativa	10	N	UPL
4. Geranium carolinianum	10	N	UPL
5. Foeniculum vulgare	5	N	FACU
6. Brassica nigra	10	N	UPL
7.			
8.			
= Total Cover	100		
Woody Vine Stratum (Plot size: ____)			
1.–2. Ø			
= Total Cover			

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

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	0	x 1 = 0
FACW species	0	x 2 = 0
FAC species	20	x 3 = 60
FACU species	5	x 4 = 20
UPL species	75	x 5 = 375
Column Totals:	100 (A)	455 (B)

Prevalence Index = B/A = 4.5

Hydrophytic Vegetation Indicators:

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

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ____ No X

Remarks: Paired upland point for small seasonal wetlands in upper reach of B1

SOIL

Sampling Point: 33

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-20"	10yr 2/1							clay

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

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

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

Indicators for Problematic Hydric Soils[3]:

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

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):
Type: clay throughout
Depth (inches): ______

Hydric Soil Present? Yes ____ No X

Remarks:
No hydric soil indicators observed. Low chroma is inherent of soil mapping unit

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present? Yes ____ No X Depth (inches): N/A
Water Table Present? Yes ____ No X Depth (inches): |
Saturation Present? (includes capillary fringe) Yes ____ No X Depth (inches): |

Wetland Hydrology Present? Yes ____ No X

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

Remarks:
none observed

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: More Mesa City/County: Goleta / Santa Barbara Sampling Date: 5/9/08

Applicant/Owner: County of S.B. State: CA Sampling Point: ~~33~~ 34

Investigator(s): K. Merk Section, Township, Range: —

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

Subregion (LRR): Mediterranean CA Lat: — Long: — Datum: —

Soil Map Unit Name: DaC - Diablo clay, 2-9% slopes NWI classification: PSSA

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

Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No ______

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

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

Hydrophytic Vegetation Present?	Yes ______ No X	Is the Sampled Area within a Wetland?	Yes ______ No X
Hydric Soil Present? (presumed)	Yes ______ No X		
Wetland Hydrology Present?	Yes ______ No X		

Remarks: Data point documents upper reach of drainage feature. Hydrology is insufficient to support hydrophytes. Non-wetland Waters of US ? ± 5'W

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ______)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3. Ø			
4.			
= Total Cover			
Sapling/Shrub Stratum (Plot size: ______)			
1.			
2. Bapi (Baccharis pilularis)			UPL
3.			
4. Todi (Toxicodendron diversilobum)			UPL
5.			
= Total Cover			
Herb Stratum (Plot size: ______)			
1.			
2.			
3.			
4.			
5. Ø			
6.			
7.			
8.			
= Total Cover			
Woody Vine Stratum (Plot size: ______)			
1.			
2. Ø			
= Total Cover			

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

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = ______

Hydrophytic Vegetation Indicators:

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

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ______ No X

Remarks: Coyote brush scrub dominates upper reach of drainage

SOIL

Sampling Point: ~~[illegible]~~ 34

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

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

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

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

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

Indicators for Problematic Hydric Soils[3]:

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

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: Unknown

Depth (inches): N/A

Hydric Soil Present? Yes ______ No X

Remarks:

No pit dug; presumed non-hydric.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) **(Nonriverine)**
- ___ Sediment Deposits (B2) **(Nonriverine)**
- ___ Drift Deposits (B3) **(Nonriverine)**
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present? Yes ______ No X Depth (inches): N/A

Water Table Present? Yes ______ No X Depth (inches): N/A

Saturation Present? (includes capillary fringe) Yes ______ No X Depth (inches): N/A

Wetland Hydrology Present? Yes ______ No X

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

—

Remarks:

OHWM estimated @ 5' W to confluence where willows appear. — No wetland hydrology indicators.

~~May not need this paired pt. as DP 24 is non-wetland waters.~~

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: More Mesa City/County: Goleta / Santa Barbara Sampling Date: 5/9/08

Applicant/Owner: Sun Mesa Inc. State: CA Sampling Point: 35

Investigator(s): K. Merk Section, Township, Range: —

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

Subregion (LRR): Mediterranean CA Lat: — Long: — Datum: —

Soil Map Unit Name: DaC - Diablo clay, 2-9% slopes NWI classification: —

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

Are Vegetation N , Soil N , or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No ___

Are Vegetation N , Soil N*, or Hydrology N naturally problematic? (If needed, explain any answers in Remarks.)
*Dark low chroma soils

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

Hydrophytic Vegetation Present?	Yes ___	No X
Hydric Soil Present?	Yes ___	No X
Wetland Hydrology Present?	Yes ___	No X

Is the Sampled Area within a Wetland? Yes ___ No X

Remarks: Upland point paired to unnamed drainage.

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: ___)			
1.			
2.			
3. Ø			
4.			
= Total Cover			
Sapling/Shrub Stratum (Plot size: ___)			
1.			
2. Bapi (Baccharis pilularis)	30	Y	UPL
3.			
4.			
5.			
= Total Cover	30		
Herb Stratum (Plot size: ___)			
1.			
2. Phalaris aquatica	60	Y	FAC+
3.			
4. Foeniculum vulgare	10	N	FACU
5.			
6.			
7.			
8.			
= Total Cover	70		
Woody Vine Stratum (Plot size: ___)			
1. Ø			
2.			
= Total Cover			

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

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 50 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	Ø	x 1 = Ø
FACW species	Ø	x 2 = Ø
FAC species	60	x 3 = 180
FACU species	10	x 4 = 40
UPL species	30	x 5 = 150
Column Totals:	100 (A)	370 (B)

Prevalence Index = B/A = 3.7

Hydrophytic Vegetation Indicators:

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

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ___ No X

Remarks: upslope from drainage area is dense Phalaris mixed w/ fennel & coyote brush

SOIL

Sampling Point: ~~25~~ 35

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

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

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

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

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

Indicators for Problematic Hydric Soils[3]:

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

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: unknown

Depth (inches): —

Hydric Soil Present? Yes ___ No X

Remarks:

No pit dug; Presumed non-hydric.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): N/A

Water Table Present? Yes ___ No X Depth (inches): N/A

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): N/A

Wetland Hydrology Present? Yes ___ No X

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

—

Remarks:

No wetland hydrology indicators.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: More Mesa City/County: Goleta/Santa Barbara Sampling Date: 5/9/08

Applicant/Owner: Sun Mesa Inc. State: CA Sampling Point: 36

Investigator(s): K. Merk Section, Township, Range: —

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

Subregion (LRR): Mediterranean CA Lat: — Long: — Datum: —

Soil Map Unit Name: CgEZ- Conception fine sandy loam, 15-30% slopes NWI classification: PSSA

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

Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No ___

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

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

Hydrophytic Vegetation Present?	Yes X	No ___
Hydric Soil Present? (presumed)	Yes X	No ___
Wetland Hydrology Present?	Yes X	No ___

Is the Sampled Area within a Wetland? Yes X No ___

Remarks: Data point documents unnamed drainage and associated, riparian wetland

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ___)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2. Salix lasiolepis	100	Y	FACW
3.			
4.			
= Total Cover			
Sapling/Shrub Stratum (Plot size: ___)			
1.			
2.			
3. Ø			
4.			
5.			
= Total Cover			
Herb Stratum (Plot size: ___)			
1.			
2.			
3.			
4. Ø			
5.			
6.			
7.			
8.			
= Total Cover			
Woody Vine Stratum (Plot size: ___)			
1.			
2. Ø			
= Total Cover			

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

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = ______

Hydrophytic Vegetation Indicators:

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

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No ___

Remarks: dense riparian corridor along western drainage segment identified as B2

SOIL

Sampling Point: ~~[illegible]~~ 36

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

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

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

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

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

Indicators for Problematic Hydric Soils[3]:

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

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):
Type: Unknown
Depth (inches): N/A

Hydric Soil Present? Yes X No ___

Remarks: Presumed hydric based on positive indicators of wetland hydrology & predominance of FACW species

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present?	Yes ___	No X	Depth (inches): N/A
Water Table Present?	Yes ___	No X	Depth (inches): N/A
Saturation Present? (includes capillary fringe)	Yes ___	No X	Depth (inches): N/A

Wetland Hydrology Present? Yes X No ___

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

—

Remarks: OHWM w/in channel estimated @ ± 5-10' W based on up + downstream. obs./wetland hydrology indicators also present.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Noro Mesa City/County: Goleta / Santa Barbara Sampling Date: 5/9/08

Applicant/Owner: Sun Mesa Inc. State: CA Sampling Point: 37

Investigator(s): K. Merk Section, Township, Range: T4N R28W

Landform (hillslope, terrace, etc.): Drainage bottom Local relief (concave, convex, none): Flat Slope (%): ______

Subregion (LRR): Mediterranean CA Lat: 34.4 Long: -119.8 Datum: ______

Soil Map Unit Name: Camarillo fine Sandy loam NWI classification: PEMA - Freshwater emergent wetland

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

Are Vegetation –, Soil –, or Hydrology – significantly disturbed? No Are "Normal Circumstances" present? Yes X No ______

Are Vegetation –, Soil –, or Hydrology – naturally problematic? No (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes X No ______	Is the Sampled Area within a Wetland? Yes X No ______
Hydric Soil Present?	Yes X No ______	
Wetland Hydrology Present?	Yes X No ______	

Remarks: Documents extent of wetland @ confluence of subdrainages

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ______)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2. ∅			
3.			
4.			
= Total Cover			
Sapling/Shrub Stratum (Plot size: ______)			
1.			
2. ∅			
3.			
4.			
5.			
= Total Cover			
Herb Stratum (Plot size: ______)			
1. Typha latifolia	70	Y	OBL
2. Scirpus maritimus	20	N	OBL
3. Atriplex triangularis	10	N	FACW
4.			
5.			
6.			
7.			
8.			
= Total Cover	100		
Woody Vine Stratum (Plot size: ______)			
1.			
2. ∅			
= Total Cover			

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

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = ______

Hydrophytic Vegetation Indicators:

X Dominance Test is >50%

__ Prevalence Index is ≤3.0[1]

__ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

__ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No ______

Remarks: Well developed Typha stand @ confluence of Drainages B2 & B3. Frankenia salina also nearby & other portions of Drainage bottom not dominated by Salix have high concent of Harding grass.

SOIL

Sampling Point: 37

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

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

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

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

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

Indicators for Problematic Hydric Soils[3]:

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

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):
Type: unknown
Depth (inches): N/A

Presumed
Hydric Soil Present? Yes X No ___

Remarks:
soils presumed hydric based on dominance of Typha, an OBL species - also observations from DP 41 used to assess extent of Corps jurisdiction

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- X Water Marks (B1) (**Nonriverine**)
- X Sediment Deposits (B2) (**Nonriverine**)
- X Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): N/A
Water Table Present? Yes ___ No X Depth (inches): -
Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): -

Wetland Hydrology Present? Yes X No ___

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

Remarks:
Soils moist @ surface adjacent to dense Typha patch
Wetland hydrology indicators present - see notes for DP 41

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Nove Mesa City/County: Goleta/Santa Barbara Sampling Date: 6/5/08

Applicant/Owner: Sun Mesa Inc. State: CA Sampling Point: 38

Investigator(s): K. Merk Section, Township, Range: ______

Landform (hillslope, terrace, etc.): Drainage bottomland Local relief (concave, convex, none): Basin Slope (%): ______

Subregion (LRR): Mediterranean CA Lat: 34.4 Long: -119.8 Datum: ______

Soil Map Unit Name: Camarillo fine Sandy loam NWI classification: ______

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

Are Vegetation –, Soil –, or Hydrology – significantly disturbed? No Are "Normal Circumstances" present? Yes X No ______

Are Vegetation –, Soil –, or Hydrology – naturally problematic? No (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes X No ______	Is the Sampled Area within a Wetland?	Yes X No ______
Hydric Soil Present?	Yes X No ______		
Wetland Hydrology Present?	Yes X No ______		

Remarks: Documents alkali marsh wetland dominated by alkali heath

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ______)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2. Ø			
3.			
4.			
= Total Cover			
Sapling/Shrub Stratum (Plot size: ______)			
1.			
2. Ø			
3.			
4.			
5.			
= Total Cover			
Herb Stratum (Plot size: ______)			
1. Frankenia salina	100	y	FACW+
2. (= F. grandiflora)			
3.			
4.			
5.			
6.			
7.			
8.			
= Total Cover	100		
Woody Vine Stratum (Plot size: ______)			
1.			
2. Ø			
= Total Cover			

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

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = ______

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No ______

Remarks: large Frankenia occurrence on basin floor – Phalaris aquatica encroaching from east.

SOIL

Sampling Point: 38

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-20"	10YR2/1		10YR5/4	40				clay → clay loam

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

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

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

Indicators for Problematic Hydric Soils[3]:

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

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):
Type: unknown
Depth (inches): N/A

Hydric Soil Present? Yes X No ___

Remarks:
low chroma w/ redox features = hydric soil

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- X Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- X Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present?	Yes ___	No X	Depth (inches): N/A
Water Table Present?	Yes ___	No X	Depth (inches): –
Saturation Present? (includes capillary fringe)	Yes ___	No X	Depth (inches): –

Wetland Hydrology Present? Yes X No ___

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

Remarks: Soil moist throughout - large bottomland where water spreads out & moves towards Atascadero Creek. Wetland hydrology indicators present

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: More Mesa City/County: Goleta / Santa Barbara Sampling Date: 6/5/08

Applicant/Owner: Sun Mesa Inc. State: CA Sampling Point: 39

Investigator(s): K. Merk Section, Township, Range: -

Landform (hillslope, terrace, etc.): Drainage Basin Local relief (concave, convex, none): near toe of slope Slope (%): ______

Subregion (LRR): Mediterranean CA Lat: 34.4 Long: -119.8 Datum: ______

Soil Map Unit Name: Camarillo fine Sandy loam NWI classification: PEMA

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

Are Vegetation —, Soil —, or Hydrology — significantly disturbed? No Are "Normal Circumstances" present? Yes X No ______

Are Vegetation Potential, Soil —, or Hydrology — naturally problematic? No (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes X	No ______
Hydric Soil Present?	Yes X	No ______
Wetland Hydrology Present?	Yes X	No ______

Is the Sampled Area within a Wetland? Yes X No ______

Remarks: Characterizes Harding grass dominated wetland edge

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: ______)			
1. Ø			
2.			
3.			
4.			
= Total Cover			
Sapling/Shrub Stratum (Plot size: ______)			
1. Ø			
2.			
3.			
4.			
5.			
= Total Cover			
Herb Stratum (Plot size: ______)			
1. Phalaris aquatica	95	Y	FAC+
2. Malvella leprosa	5	N	FAC*
3.			
4.			
5.			
6.			
7.			
8.			
= Total Cover	100		
Woody Vine Stratum (Plot size: ______)			
1. Ø			
2.			
= Total Cover			

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

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = ______

Hydrophytic Vegetation Indicators:

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

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No ______

Remarks: Phalaris encroaching the Frankenia dominated basin floor appears to be outcompeting it in areas of lower saturation

SOIL

Sampling Point: 39

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-20"	10YR 2/1		5YR 5/6	5				clay → clay loam
			5YR 7/1	5				

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

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

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

Indicators for Problematic Hydric Soils[3]:

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

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):
Type: Unknown
Depth (inches): N/A

Hydric Soil Present? Yes X No ___

Remarks:
low chroma w/ redox features = hydric soil

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- X Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): N/A
Water Table Present? Yes ___ No X Depth (inches): —
Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): —

Wetland Hydrology Present? Yes X No ___

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

Remarks:
w/in broad floodplain. wetland edge extends to toe of slope. positive indicators of wetland hydrology present.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: More Mesa City/County: Goleta/Santa Barbara Sampling Date: 6/5/08

Applicant/Owner: Sun Mesa Inc. State: CA Sampling Point: 40

Investigator(s): R. Merk Section, Township, Range: T4N R28W

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

Subregion (LRR): Mediterranean CA Lat: 34.4 Long: -119.8 Datum:

Soil Map Unit Name: Concepcion fine Sandy loam 15-30% slopes NWI classification: none

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

Are Vegetation —, Soil —, or Hydrology — significantly disturbed? No Are "Normal Circumstances" present? Yes X No ___

Are Vegetation —, Soil —, or Hydrology — naturally problematic? No (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes ___	No X	Is the Sampled Area within a Wetland? Yes ___ No X
Hydric Soil Present?	Yes ___	No X	
Wetland Hydrology Present?	Yes ___	No X	

Remarks: upland point paired to basin wetland

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: ___)			
1.			
2. Ø			
3.			
4.			
= Total Cover			
Sapling/Shrub Stratum (Plot size: ___)			
1.			
2.			
3. Ø			
4.			
5.			
= Total Cover			
Herb Stratum (Plot size: ___)			
1. Raphanus sativus	20	Y	UPL
2. Carduus pycnocephalus	10	N	UPL
3. Avena barbata	40	Y	UPL
4. Bromus diandrus	10	N	UPL
5. Hirschfeldia incana	10	N	UPL
6. Phalaris aquatica	10	N	FACU
7.			
8.			
= Total Cover	100		
Woody Vine Stratum (Plot size: ___)			
1.			
2. Ø			
= Total Cover			

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

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = ___

Hydrophytic Vegetation Indicators:

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

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ___ No X

Remarks: Characterizes upland edge of wetland in lower reach of Drainage area B.

SOIL

Sampling Point: 40

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-20"	10YR3/2							sandy loam

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

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

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

Indicators for Problematic Hydric Soils[3]:

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

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: Unknown

Depth (inches): Unk

Hydric Soil Present? Yes X No ___

Remarks:

No indicators of hydric soils observed.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): N/A

Water Table Present? Yes — No — Depth (inches): —

Saturation Present? (includes capillary fringe) Yes — No — Depth (inches): —

Wetland Hydrology Present? Yes ___ No X

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

—

Remarks:

No indicators of wetland hydrology present

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: More Mesa City/County: Goleta/Santa Barbara Sampling Date: 5/9/08
Applicant/Owner: Sun Mesa Inc. State: CA Sampling Point: 41
Investigator(s): K. Merk Section, Township, Range: T4N R28W
Landform (hillslope, terrace, etc.): Basin floor Local relief (concave, convex, none): ______ Slope (%): ______
Subregion (LRR): Mediterranean CA Lat: 34.4 Long: -119.8 Datum: ______
Soil Map Unit Name: Camarillo fine sandy loam NWI classification: PEMA
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ______ (If no, explain in Remarks.)
Are Vegetation –, Soil –, or Hydrology – significantly disturbed? No Are "Normal Circumstances" present? Yes X No ______
Are Vegetation –, Soil –, or Hydrology – naturally problematic? No (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes X	No ______
Hydric Soil Present?	Yes X	No ______
Wetland Hydrology Present?	Yes X	No ______

Is the Sampled Area within a Wetland? Yes X No ______

Remarks:
Documents Harding grass dominated wetland within drainage (B3)

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: ______)			
1.			
2.			
3. Ø			
4.			
= Total Cover			
Sapling/Shrub Stratum (Plot size: ______)			
1.			
2.			
3. Ø			
4.			
5.			
= Total Cover			
Herb Stratum (Plot size: ______)			
1. Phalaris aquatica	100	Y	FAC+
2.			
3.			
4.			
5.			
6.			
7.			
8.			
= Total Cover			
Woody Vine Stratum (Plot size: ______)			
1.			
2. Ø			
= Total Cover			

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

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)
Total Number of Dominant Species Across All Strata: 1 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = ______

Hydrophytic Vegetation Indicators:

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

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No ______

Remarks:
Phalaris dominates low area within drainage. Salix, Typha & Cirsium vulgare nearby but not w/in plot.

SOIL

Sampling Point: 41

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-20"	10YR 2/1		gley 1 2.5/N	10				clay loam
			2.5YR 4/6	10				oxidized rhizospheres

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

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

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

Indicators for Problematic Hydric Soils[3]:

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

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):
Type: unknown
Depth (inches): N/A

Hydric Soil Present? Yes X No ___

Remarks:
low chroma w/ redox features = hydric soil

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- X Sediment Deposits (B2) (**Nonriverine**)
- X Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- X Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present?	Yes ___	No X	Depth (inches): N/A
Water Table Present?	Yes ___	No X	Depth (inches): –
Saturation Present? (includes capillary fringe)	Yes ___	No X	Depth (inches): –

Wetland Hydrology Present? Yes X No ___

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

Remarks:
Surface water from Drainages B3 & B5 spread laterally through this area forming wide (toe of slope to toe of slope) wetland. Areas of leaf litter & soil accum also present = positive indicators of wetland hydrology.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: More Mesa City/County: Goleta/Santa Barbara Sampling Date: 5/9/08

Applicant/Owner: Sun Mesa Inc State: CA Sampling Point: 4/2

Investigator(s): K. Merk Section, Township, Range: —

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

Subregion (LRR): Mediterranean CA Lat: — Long: — Datum: ____

Soil Map Unit Name: Concepcion fine sandy loam 15-30% slopes NWI classification: none

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

Are Vegetation —, Soil —, or Hydrology — significantly disturbed? No Are "Normal Circumstances" present? Yes X No ____

Are Vegetation —, Soil —, or Hydrology — naturally problematic? No (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes ____	No X
Hydric Soil Present?	Yes ____	No X
Wetland Hydrology Present?	Yes ____	No X

Is the Sampled Area within a Wetland? Yes ____ No X

Remarks: Upland habitat paired point w/ 4/1

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: ____)			
1.			
2. Ø			
3.			
4.			
= Total Cover			
Sapling/Shrub Stratum (Plot size: ____)			
1.			
2. Baccharis pilularis	10	y	UPL
3.			
4.			
5.			
= Total Cover	10		
Herb Stratum (Plot size: ____)			
1. Phalaris aquatica	80	y	FAC+
2. Foeniculum vulgare	10	N	FACU
3.			
4.			
5.			
6.			
7.			
8.			
= Total Cover	90		
Woody Vine Stratum (Plot size: ____)			
1.			
2. Ø			
= Total Cover	0		

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

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	1	(A)
Total Number of Dominant Species Across All Strata:	2	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	50	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	0	x 1 = 0
FACW species	0	x 2 = 0
FAC species	80	x 3 = 240
FACU species	10	x 4 = 40
UPL species	10	x 5 = 50
Column Totals:	100 (A)	330 (B)

Prevalence Index = B/A = 3.3

Hydrophytic Vegetation Indicators:

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

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ____ No X

Remarks: upland habitat on slope above drainage area B

SOIL

Sampling Point: 47

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-20"	10YR 3/2							sandy clay loam

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

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

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

Indicators for Problematic Hydric Soils[3]:

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

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):
Type: unknown
Depth (inches): N/A

Hydric Soil Present? Yes ___ No X

Remarks:
no hydric soil indicators present

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) **(Nonriverine)**
- ___ Sediment Deposits (B2) **(Nonriverine)**
- ___ Drift Deposits (B3) **(Nonriverine)**
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): N/A
Water Table Present? Yes ___ No X Depth (inches): -
Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): -

Wetland Hydrology Present? Yes ___ No X

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

Remarks:
No indicators of wetland hydrology

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: More Mesa City/County: Goleta / SB County Sampling Date: 5/9/08

Applicant/Owner: Sun Mesa Inc. State: CA Sampling Point: 43

Investigator(s): K. Merk Section, Township, Range: –

Landform (hillslope, terrace, etc.): Local relief (concave, convex, none): – Slope (%): 20

Subregion (LRR): Mediterranean CA Lat: – Long: – Datum:

Soil Map Unit Name: Concepcion fine sandy loam 15-30% slopes NWI classification: none

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

Are Vegetation –, Soil –, or Hydrology – significantly disturbed? No Are "Normal Circumstances" present? Yes X No ____

Are Vegetation –, Soil –, or Hydrology – naturally problematic? No (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes ____	No X
Hydric Soil Present?	Yes ____	No X
Wetland Hydrology Present?	Yes ____	No X

Is the Sampled Area within a Wetland? Yes ____ No X

Remarks:
further characterizes upland habitat in this portion of study area

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2. ∅			
3.			
4.			
= Total Cover			
Sapling/Shrub Stratum (Plot size: ____)			
1.			
2. ∅			
3.			
4.			
5.			
= Total Cover			
Herb Stratum (Plot size: ____)			
1. Avena barbata	30	Y	UPL
2. Bromus hordeaceus	25	Y	UPL
3. Vicia villosa	25	Y	UPL
4. Foeniculum vulgare	20	N	FACU
5.			
6.			
7.			
8.			
= Total Cover	100		
Woody Vine Stratum (Plot size: ____)			
1.			
2. ∅			
= Total Cover			

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

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: 3 (B)

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

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	0	x 1 =
FACW species	0	x 2 =
FAC species	0	x 3 =
FACU species	20	x 4 = 80
UPL species	80	x 5 = 400
Column Totals:	100 (A)	480 (B)

Prevalence Index = B/A = 4.8

Hydrophytic Vegetation Indicators:

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

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ____ No X

Remarks:
additional data collected - paired with DPs 41 & 42
Area of annual grassland inbetween Harding grass occurrences.

SOIL

Sampling Point: 4/3

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-20"	10YR3/2							Sandy clay loam

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

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

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

Indicators for Problematic Hydric Soils[3]:

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

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):
Type: Unknown
Depth (inches): N/A

Hydric Soil Present? Yes ___ No X

Remarks:
No hydric soil indicators

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): N/A
Water Table Present? Yes ___ No X Depth (inches): -
Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): -

Wetland Hydrology Present? Yes ___ No X

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

Remarks:
No indicators of wetland hydrology

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: More Mesa City/County: Goleta / Santa Barbara Sampling Date: 5/9/08

Applicant/Owner: Sun Mesa Inc. State: CA Sampling Point: ~~[illegible]~~ 44

Investigator(s): K. Merk Section, Township, Range: —

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

Subregion (LRR): Mediterranean CA Lat: — Long: — Datum: —

Soil Map Unit Name: CgE2 – Concepcion fine sandy loam, 15-30% slopes NWI classification: PSSA

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

Are Vegetation —, Soil —, or Hydrology — significantly disturbed? Are "Normal Circumstances" present? Yes X No ___

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

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

Hydrophytic Vegetation Present?	Yes X	No ___
Hydric Soil Present? (presumed)	Yes X	No ___
Wetland Hydrology Present?	Yes X	No ___

Is the Sampled Area within a Wetland? Yes X No ___

Remarks: Data point documents drainage and associated riparian wetland. Corps jurisdictional width averages 10' throughout this area – channel & assoc. veg.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ______)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2. Salix lasiolepis	85	Y	FACW
3.			
4. Quercus agrifolia	15	N	UPL
= Total Cover	100		
Sapling/Shrub Stratum (Plot size: ______)			
1.–5. Ø			
= Total Cover			
Herb Stratum (Plot size: ______)			
1.–8. Ø			
= Total Cover			
Woody Vine Stratum (Plot size: ______)			
1.–2. Ø			
= Total Cover			

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

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = ______

Hydrophytic Vegetation Indicators:

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

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No ___

Remarks: DP characterizes willow riparian corridor w/ some Quag elements.

SOIL

Sampling Point: 44

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

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

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

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

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

Indicators for Problematic Hydric Soils[3]:

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

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: Unknown

Depth (inches): N/A

Hydric Soil Present? Yes X No ___

Remarks:

No pit dug; presumed hydric.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) **(Nonriverine)**
- ___ Sediment Deposits (B2) **(Nonriverine)**
- ___ Drift Deposits (B3) **(Nonriverine)**
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): N/A

Water Table Present? Yes ___ No X Depth (inches): N/A

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): N/A

Wetland Hydrology Present? Yes X No ___

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

—

Remarks:

dense willow riparian here. width of channel extrapolated from observable upstream and downstream reaches exhibiting OHWM indicators. Drainage ID = B3

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Mare Mesa City/County: Goleta / Santa Barbara Sampling Date: 5/9/08

Applicant/Owner: Sun Mesa Inc. State: CA Sampling Point: 45

Investigator(s): K. Mesk, S. Christopher Section, Township, Range: T4N R28W

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

Subregion (LRR): Mediterranean CA Lat: 34.4 Long: -119.8 Datum:

Soil Map Unit Name: Concepcion fine sandy loam, 2-9% slopes, eroded NWI classification: none

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

Are Vegetation –, Soil –, or Hydrology – significantly disturbed? No Are "Normal Circumstances" present? Yes X No ___

Are Vegetation –, Soil –, or Hydrology – naturally problematic? No (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes X	No ___
Hydric Soil Present?	Yes X	No ___
Wetland Hydrology Present?	Yes X	No ___

Is the Sampled Area within a Wetland? Yes X No ___

Remarks: Documents connection of eastern drainage area to Drainage B3 riparian wetland

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: ___)			
1.			
2. Ø			
3.			
4.			
= Total Cover			
Sapling/Shrub Stratum (Plot size: ___)			
1.			
2. Ø			
3.			
4.			
5.			
= Total Cover			
Herb Stratum (Plot size: ___)			
1.			
2. Phalaris aquatica	100	Y	FAC+
3.			
4.			
5.			
6.			
7.			
8.			
= Total Cover	100		
Woody Vine Stratum (Plot size: ___)			
1. Ø			
2.			
= Total Cover			

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

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	1	(A)
Total Number of Dominant Species Across All Strata:	1	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	100	(A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = ___

Hydrophytic Vegetation Indicators:

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

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ___ No ___

Remarks: characterizes area where water migrates through densely tufted Harding grass occurrence – mones along foot trails in area too. See DP 47 for upland comparison.

SOIL

Sampling Point: 45

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-4"	10yr 3/3							sandy loam
4-20"	10yr 3/2		2.5yr 4/8	5-10				sandy loam
								w/some clay inclusions
								further down below 20"

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

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

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

Indicators for Problematic Hydric Soils[3]:

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

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ______

Depth (inches): ______

Hydric Soil Present? Yes X No ___

Remarks:

chroma of 2 w/ redox features = hydric soil

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- X Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- X Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): N/A

Water Table Present? Yes ___ No X Depth (inches): –

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): –

Wetland Hydrology Present? Yes X No ___

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

Remarks:

wetland hydrology indicators present

compare w/ DPs 28 & 21 (29 characterizes upland)

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: More Mesa City/County: Goleta/Santa Barbara Sampling Date: 5/9/08

Applicant/Owner: Sun Mesa Inc. State: CA Sampling Point: 46

Investigator(s): K. Merk, S. Christopher Section, Township, Range: T4N R28W

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

Subregion (LRR): Mediterranean CA Lat: ______ Long: ______ Datum: ______

Soil Map Unit Name: Concepcion fine sandy loam 2-9% slopes eroded NWI classification: none

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

Are Vegetation —, Soil —, or Hydrology — significantly disturbed? No Are "Normal Circumstances" present? Yes X No ______

Are Vegetation —, Soil —, or Hydrology — naturally problematic? No (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes X	No ______
Hydric Soil Present?	Yes X	No ______
Wetland Hydrology Present?	Yes X	No ______

Is the Sampled Area within a Wetland? Yes X No ______

Remarks: characterizes alkali wetland in eastern portion of site

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: ______)			
1.			
2. Ø			
3.			
4.			
= Total Cover			
Sapling/Shrub Stratum (Plot size: ______)			
1.			
2. Ø			
3.			
4.			
5.			
= Total Cover			
Herb Stratum (Plot size: ______)			
1. Scirpus maritimus	50	Y	OBL
2. Frankenia salina	40	Y	FACW+
3. Distichlis spicata	5	N	FACW
4. Malvella leprosa	5	N	FAC*
5.			
6.			
7.			
8.			
= Total Cover	100		
Woody Vine Stratum (Plot size: ______)			
1.			
2. Ø			
= Total Cover			

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

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = ______

Hydrophytic Vegetation Indicators:

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

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No ______

Remarks: alkali wetland associated w/ Drainage B3 – supported by surface runoff from Hope Ranch. area may have been excavated @ one time as earthen berm to south helps direct surface flow to west.

SOIL

Sampling Point: 46

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-20"	gley 1 2.5/n		7.5yr 4/8 (ox. rhizospheres)					clay

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

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

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

Indicators for Problematic Hydric Soils[3]:

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

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):
Type: unknown
Depth (inches): N/A

Hydric Soil Present? Yes X No ___

Remarks: hydric soil indicators present

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- X Saturation (A3)
- X Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- X Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- X Water-Stained Leaves (B9)
- X Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- X Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

Field Observations:

*Surface H2O observed in March 2008 ± 1-3" Deep.

Surface Water Present? Yes ___ No X Depth (inches): ___
Water Table Present? Yes ___ No X Depth (inches): ___
Saturation Present? (includes capillary fringe) Yes X No ___ Depth (inches): @ 6-20"

Wetland Hydrology Present? Yes X No ___

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

Remarks: wetland hydrology indicators present

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: More Mesa City/County: Goleta/Santa Barbara Sampling Date: 5/9/08
Applicant/Owner: Sun Mesa Inc. State: CA Sampling Point: 47
Investigator(s): K. Merk Section, Township, Range: —
Landform (hillslope, terrace, etc.): Local relief (concave, convex, none): Slope (%):
Subregion (LRR): Mediterranean CA Lat: — Long: — Datum: —
Soil Map Unit Name: CaC2 - Conception fine sandy loam, 2-9% slopes NWI classification: — none —
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ___ (If no, explain in Remarks.)
Are Vegetation N, Soil N, or Hydrology N significantly disturbed? NO Are "Normal Circumstances" present? Yes X No ___
Are Vegetation N, Soil N, or Hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes ___ No X	Is the Sampled Area within a Wetland? Yes ___ No X
Hydric Soil Present? (assumed)	Yes ___ No X	
Wetland Hydrology Present?	Yes ___ No X	

Remarks:
Upland point paired to alkali heath- and prairie bulrush-dominated seasonal wetland

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: ___)			
1. Ø			
2.			
3.			
4.			
= Total Cover			
Sapling/Shrub Stratum (Plot size: ___)			
1.			
2. Bapi (Baccharis pilularis)	30	Y	UPL
3.			
4.			
5.			
= Total Cover	30		
Herb Stratum (Plot size: ___)			
1.			
2. Raphanus sativus	25	Y	UPL
3. Brassica nigra	20	N	UPL
4.			
5. Cortaderia jubata	15	N	UPL
6.			
7. Phalaris aquatica	10	N	FACU
8.			
= Total Cover	70		
Woody Vine Stratum (Plot size: ___)			
1. Ø			
2.			
= Total Cover			

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

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = ___

Hydrophytic Vegetation Indicators:

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

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ___ No X

Remarks:
characterizes the earthen berm & adj upland habitat

SOIL

Sampling Point: 47

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-20"	10yr3/2							Sandy loam

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

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

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

Indicators for Problematic Hydric Soils[3]:

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

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):
Type: Unknown
Depth (inches): N/A

Hydric Soil Present? Yes ____ No X

Remarks: Ø

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

__ Surface Water (A1)
__ High Water Table (A2)
__ Saturation (A3)
__ Water Marks (B1) (**Nonriverine**)
__ Sediment Deposits (B2) (**Nonriverine**)
__ Drift Deposits (B3) (**Nonriverine**)
__ Surface Soil Cracks (B6)
__ Inundation Visible on Aerial Imagery (B7)
__ Water-Stained Leaves (B9)
__ Salt Crust (B11)
__ Biotic Crust (B12)
__ Aquatic Invertebrates (B13)
__ Hydrogen Sulfide Odor (C1)
__ Oxidized Rhizospheres along Living Roots (C3)
__ Presence of Reduced Iron (C4)
__ Recent Iron Reduction in Tilled Soils (C6)
__ Thin Muck Surface (C7)
__ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present? Yes ____ No X Depth (inches): N/A
Water Table Present? Yes ____ No X Depth (inches): N/A
Saturation Present? (includes capillary fringe) Yes ____ No X Depth (inches): N/A

Wetland Hydrology Present? Yes ____ No X

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

Remarks:

No wetland hydrology indicators.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: More Mesa City/County: Goleta/Santa Barbara Sampling Date: 5/9/08

Applicant/Owner: Sun Mesa Inc State: CA Sampling Point: 48

Investigator(s): K. Merk, S. Christopher Section, Township, Range: ____

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

Subregion (LRR): Mediterranean CA Lat: ____ Long: ____ Datum: ____

Soil Map Unit Name: Concepcion fine sandy loam 2-9% slopes eroded NWI classification: none

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

Are Vegetation —, Soil —, or Hydrology — significantly disturbed? No Are "Normal Circumstances" present? Yes X No ____

Are Vegetation —, Soil —, or Hydrology — naturally problematic? No (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes X No ____	Is the Sampled Area within a Wetland? Yes X No ____
Hydric Soil Present?	Yes X No ____	
Wetland Hydrology Present?	Yes X No ____	

Remarks:
Documents Harding grass dominated wetland

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2. Ø			
3.			
4.			
= Total Cover			
Sapling/Shrub Stratum (Plot size: ____)			
1.			
2. Ø			
3.			
4.			
5.			
= Total Cover			
Herb Stratum (Plot size: ____)			
1. Phalaris aquatica	60	Y	FAC+
2. Lolium perenne ssp. multiflorum	5	N	FAC*
3. Picris echioides	10	N	FAC*
4. Anagalis arvensis	10	N	FAC
5. Lythrum hyssopifolium	10	N	FACW
6. Medicago polymorpha	5	N	UPL
7.			
8.			
= Total Cover	100		
Woody Vine Stratum (Plot size: ____)			
1.			
2. Ø			
= Total Cover			

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

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

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

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ____ No ____

Remarks:
large seasonally flooded area between Salix dominated woodlands. One disjunct S. laevigata present & large Eucalyptus forms northern boundary of polygon. Associates are mostly facultative spp. compared to drier Phalaris dominated areas.

SOIL

Sampling Point: 48

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-4"	10yr 3/3							sandy loam
4"-16"	10yr 3/2		2.5yr 4/8	10				sandy loam
16"+	has an increase in redox features from 10→15% & is moist							

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

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

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

Indicators for Problematic Hydric Soils[3]:

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

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):
Type: unknown
Depth (inches): N/A

Hydric Soil Present? Yes X No ___

Remarks: chroma of 2 w/ redox features = hydric soil

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) **(Nonriverine)**
- ___ Sediment Deposits (B2) **(Nonriverine)**
- ___ Drift Deposits (B3) **(Nonriverine)**
- X Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- X Water-Stained Leaves (B9)
- X Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- X Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): N/A
Water Table Present? Yes ___ No X Depth (inches): N/A
Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): N/A

Wetland Hydrology Present? Yes X No ___

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

Remarks:
Dried algal remains present in areas between Phalaris clumps. Drainage ditch to the north & surrounding residences to east contribute to hydrology input in this area

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: More Mesa City/County: Goleta/Santa Barbara Sampling Date: 5/9/08

Applicant/Owner: Sun Mesa Inc. State: CA Sampling Point: 49

Investigator(s): K. Merk, S. Christopher Section, Township, Range: ______

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

Subregion (LRR): Mediterranean CA Lat: — Long: — Datum: ______

Soil Map Unit Name: Concepcion fine sandy loam 2-9% slopes eroded NWI classification: none

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

Are Vegetation ______, Soil ______, or Hydrology ______ significantly disturbed? No Are "Normal Circumstances" present? Yes X No ______

Are Vegetation ______, Soil ______, or Hydrology ______ naturally problematic? No (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes X No ______	Is the Sampled Area within a Wetland?	Yes X No ______
Hydric Soil Present?	Yes X No ______		
Wetland Hydrology Present?	Yes X No ______		

Remarks: Characterizes riparian wetland along eastern edge of study area associated w/ Drainage Area B

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ______)	Absolute % Cover	Dominant Species?	Indicator Status
1. Salix lasiolepis	85	Y	FACW
2. S. laevigata	10	N	FACW
3. Quercus agrifolia	5	N	UPL
4.			
= Total Cover			
Sapling/Shrub Stratum (Plot size: ______)			
1.			
2. Ø			
3.			
4.			
5.			
= Total Cover			
Herb Stratum (Plot size: ______)			
1. Vicia villosa	5	N	UPL
2. Raphanus sativus	5	N	UPL
3. Sonchus asper	5	N	FAC
4. Conium maculatum	5	N	FACW
5. Tropaeolum majus	10	N	UPL
6.			
7.			
8.			
= Total Cover	30		
Woody Vine Stratum (Plot size: ______)			
1. Ø			
2.			
= Total Cover			

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

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = ______

Hydrophytic Vegetation Indicators:

X Dominance Test is >50%

__ Prevalence Index is ≤3.0[1]

__ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

__ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No ______

Remarks: Characterizes riparian wetland @ terminus of ditch that runs north → south along eastern study area boundary. Neighboring property has pond that contributes H_2O to this area – seeping out
some willows have been trimmed – apparently to increase views from Hope Ranch properties

SOIL

Sampling Point: 49

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-6"	10yr 3/2							sandy loam
6-16"	10yr 2/1		10yr 7/2	25				sandy loam grading into clay
16-24	10yr 2/1		2.5y 5/2	40				

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

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

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

Indicators for Problematic Hydric Soils[3]:

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

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):
Type: Clay
Depth (inches): ± 20 + inches

Hydric Soil Present? Yes X No ___

Remarks:
hydric soil indicators present

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- X Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- X Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

Field Observations:

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

Wetland Hydrology Present? Yes X No ___

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

Remarks:
indicators of wetland hydrology present

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: More Mesa City/County: Goleta/Santa Barbara Sampling Date: 5/9/08

Applicant/Owner: Sun Mesa Inc. State: CA Sampling Point: 50

Investigator(s): K. Merk, S. Christopher Section, Township, Range: T4N R28W

Landform (hillslope, terrace, etc.): ______ Local relief (concave, convex, none): Ditch (constructed) Slope (%): ______

Subregion (LRR): Mediterranean CA Lat: ______ Long: ______ Datum: ______

Soil Map Unit Name: Concepcion fine sandy loam 2-9% slopes NWI classification: none

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

Are Vegetation —, Soil —, or Hydrology — significantly disturbed? No Are "Normal Circumstances" present? Yes X No ______

Are Vegetation —, Soil —, or Hydrology — naturally problematic? No (If needed, explain any answers in Remarks.)

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

	Yes	No
Hydrophytic Vegetation Present?		X
Hydric Soil Present?		X
Wetland Hydrology Present?	X	

Is the Sampled Area within a Wetland? Yes ______ No X

Remarks: Documents "other waters" (non-wetland) confined within constructed ditch. OHWM averages 3' wide

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ______)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2. Ø			
3.			
4.			
= Total Cover			
Sapling/Shrub Stratum (Plot size: ______)			
1.			
2. Ø			
3.			
4.			
5.			
= Total Cover			
Herb Stratum (Plot size: ______)			
1.			
2. Tropaeolum majus	10	N	UPL
3. Raphanus sativus	20	Y	UPL
4. Avena barbata	20	Y	UPL
5. Polygonum arenastrum	10	N	UPL
6.			
7.			
8.			
= Total Cover	60		
Woody Vine Stratum (Plot size: ______)			
1.			
2. Ø			
= Total Cover			

% Bare Ground in Herb Stratum 40 % Cover of Biotic Crust Ø

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = 5

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ______ No X

Remarks: Ditch constructed along site's eastern boundary directs surface runoff from Hope Ranch to Drainage Area B. Concrete lined ditch from Hope Ranch "daylights" onto study area near this D.P.

SOIL

Sampling Point: 50

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

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

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

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

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

Indicators for Problematic Hydric Soils[3]:

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

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):
Type: UNKNOWN
Depth (inches): N/A

Hydric Soil Present? Yes ___ No ___

Remarks:
No soil pit dug - hydric soil indicators presumed absent based on veg

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- X Sediment Deposits (B2) (**Nonriverine**)
- X Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): N/A
Water Table Present? Yes ___ No X Depth (inches): -
Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): -

Wetland Hydrology Present? Yes X No ___

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

Remarks:
OHWM averages 3' wide throughout length of ditch.
Clear evidence of scour & deposition w/in a channel

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: More Mesa City/County: Goleta/ Santa Barbara Sampling Date: 2/18/09

Applicant/Owner: Sun Mesa Inc State: CA Sampling Point: 51

Investigator(s): K. Merk Section, Township, Range: ______

Landform (hillslope, terrace, etc.): Ditch Local relief (concave, convex, none): terrace has trapezoidal Drainage Ditch Slope (%): ______

Subregion (LRR): Mediterranean CA Lat: 34.4 Long: -119.8 Datum: ______

Soil Map Unit Name: Concepcion fine sandy loam 2-9% slopes NWI classification: none

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

Are Vegetation –, Soil –, or Hydrology – significantly disturbed? no Are "Normal Circumstances" present? Yes X No ______

Are Vegetation –, Soil –, or Hydrology – naturally problematic? no (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes ______ No X	Is the Sampled Area within a Wetland? Yes ______ No X
Hydric Soil Present?	Yes ______ No X	
Wetland Hydrology Present?	Yes ______ No X	

Remarks:
Documents ditch constructed in upland area to drain surface H_2O from Mockingbird lake & Vieja.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ______)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
= Total Cover	0		
Sapling/Shrub Stratum (Plot size: ______)			
1.			
2.			
3.			
4.			
5.			
= Total Cover	0		
Herb Stratum (Plot size: 20 x 100)			
1. Bromus diandrus	20	Y	UPL
2. Lolium multiflorum	10	N	FAC*
3. Avena barbata	20	Y	UPL
4. Rumex crispus	5	N	FACW+
5. Bromus hordeaceus	5	N	FACU
6. Geranium carolinianum	5	N	UPL
7. Anagallis arvensis	5	N	FAC
8. Typha latifolia	10	N	OBL
Cyperus eragrostis	10	N	FACW
= Total Cover	100		
~~Woody Vine Stratum~~ (Plot size: ______)			
1. Phalaris aquatica	10	N	FAC+
2. Ø			
= Total Cover	Ø		

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

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	10	x 1 = 10
FACW species	15	x 2 = 30
FAC species	25	x 3 = 75
FACU species	5	x 4 = 20
UPL species	45	x 5 = 225
Column Totals:	100 (A)	360 (B)

Prevalence Index = B/A = 3.6

Hydrophytic Vegetation Indicators:

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

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ______ No X

Remarks:
Characterizes ditch excavated for drainage off Mockingbird lake. Small (3'x3') patch of Typh present in one location near prop. line. Otherwise dominated by upland grasses.

SOIL

Sampling Point: 51

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-20"	10YR 2/1							clay

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

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

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

Indicators for Problematic Hydric Soils[3]:

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

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):
Type: clay throughout
Depth (inches): —

Hydric Soil Present? Yes ___ No X

Remarks:
no hydric soil indicators observed. Area mapped as Concepcion fine sandy loam – but it was affected by previous construction in the area of ditch creation.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

___ Surface Water (A1)
___ High Water Table (A2)
___ Saturation (A3)
___ Water Marks (B1) (**Nonriverine**)
___ Sediment Deposits (B2) (**Nonriverine**)
___ Drift Deposits (B3) (**Nonriverine**)
___ Surface Soil Cracks (B6)
___ Inundation Visible on Aerial Imagery (B7)
___ Water-Stained Leaves (B9)
___ Salt Crust (B11)
___ Biotic Crust (B12)
___ Aquatic Invertebrates (B13)
___ Hydrogen Sulfide Odor (C1)
___ Oxidized Rhizospheres along Living Roots (C3)
___ Presence of Reduced Iron (C4)
___ Recent Iron Reduction in Tilled Soils (C6)
___ Thin Muck Surface (C7)
___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

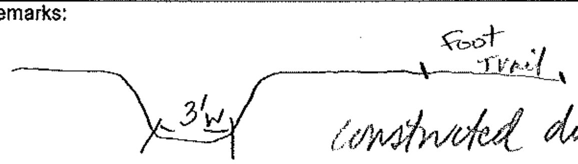
Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): N/A
Water Table Present? Yes ___ No X Depth (inches): /
Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): /

Wetland Hydrology Present? Yes ___ No X

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

Remarks:



constructed ditch in upland area. No indicators of wetland hydrology present

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Ncove Mesa City/County: Goleta / Santa Barbara Sampling Date: 6/4/08

Applicant/Owner: Sun Mesa Inc. State: CA Sampling Point: 52

Investigator(s): K. Merk Section, Township, Range: ______

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

Subregion (LRR): Mediterranean CA Lat: ______ Long: ______ Datum: ______

Soil Map Unit Name: Baywood Loamy Sand / Diablo Clay Interface NWI classification: None

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

Are Vegetation —, Soil —, or Hydrology — significantly disturbed? No Are "Normal Circumstances" present? Yes X No ______

Are Vegetation —, Soil —, or Hydrology —— naturally problematic? No (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes X	No ______
Hydric Soil Present?	Yes X	No ______
Wetland Hydrology Present?	Yes X	No ______

Is the Sampled Area within a Wetland? Yes X No ______

Remarks: Documents seasonal wetland in southeast portion of site – area of localized depressions create large seasonal wetland dominated by facultative grasses.

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: ______)			
1.			
2. Ø			
3.			
4.			
= Total Cover			
Sapling/Shrub Stratum (Plot size: ______)			
1.			
2. Ø			
3.			
4.			
5.			
= Total Cover			
Herb Stratum (Plot size: ______)			
1. Hordeum marinum ssp. gussoneanum	25	Y	FAC
2. Lolium perenne ssp. multiflorum	25	Y	FAC*
3. Rumex crispus	10	N	FACW-
4. Malvella leprosa	10	N	FAC*
5. Phalaris aquatica	15	N	FAC+
6. Eleocharis acicularis	15	N	OBL
7.			
8.			
= Total Cover	100		
Woody Vine Stratum (Plot size: ______)			
1.			
2. Ø			
= Total Cover			

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

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = ______

Hydrophytic Vegetation Indicators:

X Dominance Test is >50%

__ Prevalence Index is ≤3.0[1]

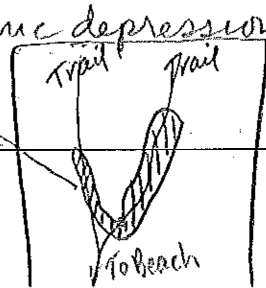
__ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

__ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No ______

Remarks: Characterizes topographic depression – linked to trail by microtopographical swale large seasonal wetland



SOIL

Sampling Point: S2

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-6"	10YR 2/2							sandy clay loam
6-20	10YR 2/1 → gley 1 2.5/N							clay (dark)
			7.5YR 2/2	10%				

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

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

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

Indicators for Problematic Hydric Soils[3]:

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

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):
Type: clay
Depth (inches): @ 20"

Hydric Soil Present? Yes X No ___

Remarks: hydric soil indicators present

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- X Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- X Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- X Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): N/A
Water Table Present? Yes ___ No X Depth (inches): —
Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): —

Wetland Hydrology Present? Yes X No ___

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

Remarks: positive indicators of wetland hydrology present

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: More Mesa City/County: Goleta / Santa Barbara Sampling Date: 6/4/08

Applicant/Owner: Sun Mesa Inc State: CA Sampling Point: 53

Investigator(s): K. Merk Section, Township, Range: T4N R28W

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

Subregion (LRR): Mediterranean CA Lat: 34.4 Long: -119.8 Datum:

Soil Map Unit Name: Diablo Clay / Baywood loamy sand interface NWI classification: None

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

Are Vegetation —, Soil —, or Hydrology — significantly disturbed? No Are "Normal Circumstances" present? Yes X No ____

Are Vegetation —, Soil —, or Hydrology — naturally problematic? No (If needed, explain any answers in Remarks.)

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

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

Remarks: Documents upland habitat adjacent to seasonal wetland @ DP 52 – Presence of Phalaris meets hydrophytic veg criterion, but associates are upland species compared to those @ DP 52

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: ____)			
1.–4. Ø			
= Total Cover			
Sapling/Shrub Stratum (Plot size: ____)			
1.–5. Ø			
= Total Cover			
Herb Stratum (Plot size: ____)			
1. Phalaris aquatica	90	Y	FACW
2. Geranium carolinianum	5	N	UPL
3. Foeniculum vulgare	5	N	FACU
4.			
5.			
6.			
7.			
8.			
= Total Cover	100		
Woody Vine Stratum (Plot size: ____)			
1.–2. Ø			
= Total Cover			

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

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

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

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No ____

Remarks: Characterizes upland adj. to seasonal wetland @ DP 52 – Wetland area transitions into dense Phalaris grassland w/ upland associates.

SOIL

Sampling Point: 53

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-4"	10YR 2/2							sandy clay
6-20"	10YR 2/1							clay

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

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

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

Indicators for Problematic Hydric Soils[3]:

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

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):
Type: clay
Depth (inches): throughout profile

Hydric Soil Present? Yes ___ No X

Remarks:
no indicators of hydric soils present - low chroma is typical for Diablo clay

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) **(Nonriverine)**
- ___ Sediment Deposits (B2) **(Nonriverine)**
- ___ Drift Deposits (B3) **(Nonriverine)**
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): n/a
Water Table Present? Yes ___ No X Depth (inches): /
Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): /

Wetland Hydrology Present? Yes ___ No X

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

Remarks:
No indicators observed.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: More Mesa City/County: Santa Barbara Sampling Date: 2/18/09

Applicant/Owner: Sun Mesa Inc State: CA Sampling Point: S4

Investigator(s): K. Merk Section, Township, Range: ______

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

Subregion (LRR): Mediterranean CA Lat: ______ Long: ______ Datum: ______

Soil Map Unit Name: Diablo Clay / Baywood loamy sand interface NWI classification: none

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

Are Vegetation –, Soil –, or Hydrology – significantly disturbed? No Are "Normal Circumstances" present? Yes X No ___

Are Vegetation –, Soil –, or Hydrology – naturally problematic? No (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes X No ___	Is the Sampled Area within a Wetland? Yes ___ No X
Hydric Soil Present?	Yes ___ No X	
Wetland Hydrology Present?	Yes X No ___	

Remarks:
Documents 2 parameter wetland with seasonally ponded H_2O

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ___)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2. Ø			
3.			
4.			
= Total Cover			
Sapling/Shrub Stratum (Plot size: ___)			
1.			
2. Ø			
3.			
4.			
5.			
= Total Cover			
Herb Stratum (Plot size: ___)			
1. Phalaris aquatica	60	Y	FAC+
2. Anagallis arvensis	5	N	FAC
3. Lolium multiflorum	30	Y	FAC
4.			
5.			
6.			
7.			
8.			
= Total Cover	95		
Woody Vine Stratum (Plot size: ___)			
1.			
2.			
= Total Cover			

% Bare Ground in Herb Stratum 5 % Cover of Biotic Crust Ø

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = ______

Hydrophytic Vegetation Indicators:

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

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No ___

Remarks:
characterizes small pocket wetland along eastern study area boundary – w/ facultative associates compared to Phalaris dominated uplands

SOIL

Sampling Point: 54

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-3"	10YR2/2							sandy clay loam
3-20"	10YR2/1							clay

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

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

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

Indicators for Problematic Hydric Soils[3]:

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

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):
Type: clay
Depth (inches): throughout

Hydric Soil Present? Yes ____ No X

Remarks:
no hydric soil indicators observed.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- X Surface Water (A1)
- X High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1) **(Nonriverine)**
- ___ Sediment Deposits (B2) **(Nonriverine)**
- ___ Drift Deposits (B3) **(Nonriverine)**
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present? Yes X No / Depth (inches): ± 1-2"
Water Table Present? Yes X No ____ Depth (inches): @ surface
Saturation Present? (includes capillary fringe) Yes X No ____ Depth (inches): ____

Wetland Hydrology Present? Yes X No ____

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

Remarks:
± 20'x20' area of ponded water.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Noka Mesa City/County: Santa Barbara Sampling Date: 2/18/09

Applicant/Owner: Sun Mesa Inc. State: CA Sampling Point: 55

Investigator(s): K. Merk Section, Township, Range: ______

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

Subregion (LRR): Mediterranean CA Lat: — Long: — Datum: ______

Soil Map Unit Name: Diablo clay / Baywood loamy sand interface NWI classification: none

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

Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No ______

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

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

Hydrophytic Vegetation Present?	Yes ______ No X	Is the Sampled Area within a Wetland? Yes ______ No X
Hydric Soil Present?	Yes ______ No X	
Wetland Hydrology Present?	Yes ______ No X	

Remarks:
Paired upland point w/ DP 54

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ______)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2. Ø			
3.			
4.			
= Total Cover			
Sapling/Shrub Stratum (Plot size: ______)			
1.			
2.			
3. Ø			
4.			
5.			
= Total Cover			
Herb Stratum (Plot size: ______)			
1. Phalaris aquatica	40	Y	FAC+
2. Bromus hordeaceus	25	Y	FACU
3. Geranium carolinianum	15	N	UPL
4. Lolium multiflorum	5	N	FAC*
5. Anagallis arvensis	5	N	FAC
6. Avena barbata	5	N	UPL
7. Hordeum marinum ssp. gussoneanum	5	N	FAC
8.			
= Total Cover	100		
Woody Vine Stratum (Plot size: ______)			
1. Ø			
2.			
= Total Cover			

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

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 50 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	0	x 1 = 0
FACW species	0	x 2 = 0
FAC species	55	x 3 = 165
FACU species	25	x 4 = 100
UPL species	20	x 5 = 100
Column Totals:	100 (A)	365 (B)

Prevalence Index = B/A = 3.6

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ______ No X

Remarks:
Characterizes upland area adjacent to seasonal ponding location – note upland species associated w/ this area.

SOIL

Sampling Point: 55

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 2/2							sandy clay loam
4-20	10YR 2/1							clay

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

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

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

Indicators for Problematic Hydric Soils[3]:

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

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):
Type: clay
Depth (inches): throughout

Hydric Soil Present? Yes ___ No X

Remarks:
no hydric soil indicators observed

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present? Yes ___ No ✓ Depth (inches): N/A
Water Table Present? Yes ___ No X Depth (inches): |
Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): |

Wetland Hydrology Present? Yes ___ No X

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

Remarks:
No wetland hydrology indicators observed

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: More Mesa City/County: Goleta/Santa Barbara Sampling Date: 6/4/08

Applicant/Owner: [illegible] Sun Mesa Inc. State: CA Sampling Point: 56

Investigator(s): Merli Section, Township, Range: —

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

Subregion (LRR): Mediterranean CA Lat: — Long: — Datum: —

Soil Map Unit Name: BcC - Baywood loamy sand, 2-9% slopes NWI classification: — none —

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

Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No ______

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

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

Hydrophytic Vegetation Present?	Yes X No ______	Is the Sampled Area within a Wetland? Yes X No ______
Hydric Soil Present?	Yes X No ______	
Wetland Hydrology Present?	Yes X No ______	

Remarks:
Data point represents vernal pool in southeast corner of study area.

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: ______)			
1. Ø			
2.			
3.			
4.			
		= Total Cover	
Sapling/Shrub Stratum (Plot size: ______)			
1. Ø			
2.			
3.			
4.			
5.			
		= Total Cover	
Herb Stratum (Plot size: ______)			
1. Eryngium vaseyii	20.	Y	FACW
2. Eleocharis acicularis	25.	Y	OBL
3. Plagiobothrys undulatus	10.	N	FACW+
4. Alopecurus saccatus	15.	N	OBL
5. Rumex crispus	15	N	FACW-
6. Phalaris aquatica	15	N	FAC
7.			
8.			
	100	= Total Cover	
Woody Vine Stratum (Plot size: ______)			
1. Ø			
2.			
		= Total Cover	

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

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = ______

Hydrophytic Vegetation Indicators:

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

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No ______

Remarks:
characterizes topographic low area in southeast sector of the Mesa = known vernal pool.

SOIL

Sampling Point: ~~3~~ 56

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

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

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

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

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

Indicators for Problematic Hydric Soils[3]:

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

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):
Type: Unknown
Depth (inches): N/A

Hydric Soil Present? Yes X No __

Remarks: No soil pit - potential vernal pool fairy shrimp site. Presumed hydric based on presence of FACW + OBL plants & direct observation of wetland hydrology indicators.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- X Surface Water (A1)
- __ High Water Table (A2)
- __ Saturation (A3)
- __ Water Marks (B1) (**Nonriverine**)
- __ Sediment Deposits (B2) (**Nonriverine**)
- __ Drift Deposits (B3) (**Nonriverine**)
- __ Surface Soil Cracks (B6)
- X Inundation Visible on Aerial Imagery (B7)
- X Water-Stained Leaves (B9)
- __ Salt Crust (B11)
- __ Biotic Crust (B12)
- X Aquatic Invertebrates (B13)
- __ Hydrogen Sulfide Odor (C1)
- __ Oxidized Rhizospheres along Living Roots (C3)
- __ Presence of Reduced Iron (C4)
- __ Recent Iron Reduction in Tilled Soils (C6)
- __ Thin Muck Surface (C7)
- __ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present?	Yes X	No __	Depth (inches): 2-4"
Water Table Present?	Yes X	No __	Depth (inches): + 2-4"
Saturation Present? (includes capillary fringe)	Yes X	No __	Depth (inches): 0

Wetland Hydrology Present? Yes X No __

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

Remarks:
Sufficient wetland hydrology indicators.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: More Mesa City/County: Goleta / Santa Barbara Sampling Date: 6/4/08

Applicant/Owner: Sun Mesa Inc. State: CA Sampling Point: 57

Investigator(s): K. Marek Section, Township, Range: ______

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

Subregion (LRR): Mediterranean CA Lat: ______ Long: ______ Datum: ______

Soil Map Unit Name: Baywood loamy sand / Diablo Clay interface NWI classification: none

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

Are Vegetation —, Soil —, or Hydrology — significantly disturbed? NO Are "Normal Circumstances" present? Yes X No ______

Are Vegetation X, Soil ______, or Hydrology ______ naturally problematic? (If needed, explain any answers in Remarks.)
– potentially Harding grass

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

Hydrophytic Vegetation Present?	Yes X	No ______
Hydric Soil Present?	Yes ______	No X
Wetland Hydrology Present?	Yes ______	No X
Is the Sampled Area within a Wetland?	Yes ______	No X

Remarks: paired upland point delineating edge of vernal pool habitat

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: ______)			
1.			
2.			
3. Ø			
4.			
= Total Cover			
Sapling/Shrub Stratum (Plot size: ______)			
1. Baccharis pilularis	10	N	UPL
2.			
3.			
4.			
5.			
= Total Cover	10		
Herb Stratum (Plot size: ______)			
1. Phalaris aquatica	80	Y	FAC
2. Geranium carolinianum	10	N	UPL
3.			
4.			
5.			
6.			
7.			
8.			
= Total Cover	90		
Woody Vine Stratum (Plot size: ______)			
1.			
2. 0			
= Total Cover			

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

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = ______

Hydrophytic Vegetation Indicators:

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

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No ______

Remarks: upland paired point @ vernal pool, Dominated by Harding grass, but associates are upland spp. + no ponding H_2O present in this outer reach.

SOIL

Sampling Point: 57

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR3/3							Sandy loam
6-20	10YR3/2							Sandy loam

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

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

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

Indicators for Problematic Hydric Soils[3]:

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

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):
Type: unknown
Depth (inches): N/A

Hydric Soil Present? Yes ___ No X

Remarks:
No indicators observed - DP occurs near edge of Baywood & Diablo Clay boundaries

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): N/A
Water Table Present? Yes ___ No X Depth (inches): /
Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): /

Wetland Hydrology Present? Yes ___ No X

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

Remarks:
No indicators present

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: More Mesa City/County: Santa Barbara Sampling Date: 2/18/09

Applicant/Owner: Sun Mesa Inc. State: CA Sampling Point: 58

Investigator(s): K. Merk Section, Township, Range: ______

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

Subregion (LRR): Mediterranean CA Lat: ______ Long: ______ Datum: ______

Soil Map Unit Name: Baywood Loamy Sand 2-9% slopes NWI classification: none

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

Are Vegetation Y, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No ______

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

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

Hydrophytic Vegetation Present?*	Yes ____	No X
Hydric Soil Present?	Yes ____	No X
Wetland Hydrology Present?	Yes X	No ____

Is the Sampled Area within a Wetland? Yes ______ No X

Remarks: characterizes area of prolonged ponding along foot trail @ Bluff.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ______)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2. ∅			
3.			
4.			
= Total Cover			
Sapling/Shrub Stratum (Plot size: ______)			
1.			
2.			
3. ∅			
4.			
5.			
= Total Cover			
Herb Stratum (Plot size: ______)			
1.			
2.			
3. ∅			
4.			
5.			
6.			
7.			
8.			
= Total Cover			
Woody Vine Stratum (Plot size: ______)			
1.			
2.			
= Total Cover			

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

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = ______

Hydrophytic Vegetation Indicators:

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

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ______ No ______

Remarks: Seasonal pond @ trail near Sucs – area is bare sand due to foot traffic = main trail

SOIL

Sampling Point: 58

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR3/2							sandy loam
6-20"	10YR2/2							sandy clay loam

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

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

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

Indicators for Problematic Hydric Soils[3]:

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

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):
Type: clay
Depth (inches): > 20"

Hydric Soil Present? Yes ___ No X

Remarks:
more clay present deeper in profile. No indicators of hydric soils observed

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

X Surface Water (A1)
___ High Water Table (A2)
X Saturation (A3)
___ Water Marks (B1) **(Nonriverine)**
___ Sediment Deposits (B2) **(Nonriverine)**
___ Drift Deposits (B3) **(Nonriverine)**
___ Surface Soil Cracks (B6)
___ Inundation Visible on Aerial Imagery (B7)
___ Water-Stained Leaves (B9)
___ Salt Crust (B11)
___ Biotic Crust (B12)
___ Aquatic Invertebrates (B13)
___ Hydrogen Sulfide Odor (C1)
___ Oxidized Rhizospheres along Living Roots (C3)
___ Presence of Reduced Iron (C4)
___ Recent Iron Reduction in Tilled Soils (C6)
___ Thin Muck Surface (C7)
___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present? Yes X No ___ Depth (inches): 2-3"
Water Table Present? Yes X No ___ Depth (inches): @surface
Saturation Present? (includes capillary fringe) Yes X No ___ Depth (inches): @surface

Wetland Hydrology Present? Yes X No ___

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

Remarks:
area of seasonally ponded water along trail.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: More Mesa City/County: Goleta / Santa Barbara Sampling Date: 2/18/09

Applicant/Owner: Sun Mesa Inc. State: CA Sampling Point: 59

Investigator(s): K. Merk Section, Township, Range: ______

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

Subregion (LRR): Mediterranean CA Lat: — Long: — Datum: —

Soil Map Unit Name: Baywood loamy sand 2-9% slopes NWI classification: none

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

Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

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

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

Hydrophytic Vegetation Present?	Yes ____ No X	Is the Sampled Area within a Wetland? Yes ____ No X
Hydric Soil Present?	Yes ____ No X	
Wetland Hydrology Present?	Yes ____ No X	

Remarks: Documents upland habitat adjacent to seasonal ponding along trail

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: ____)			
1. Ø			
2.			
3.			
4.			
= Total Cover			
Sapling/Shrub Stratum (Plot size: ____)			
1.			
2. Baccharis pilularis	10	N	UPL
3.			
4.			
5.			
= Total Cover	10		
Herb Stratum (Plot size: ____)			
1. Bromus diandrus	30	Y	UPL
2. Bromus hordeaceus	15	N	FACU
3. Avena barbata	15	N	UPL
4. Hordeum murinum ssp. leporinum	10	N	UPL
5. Geranium carolinianum	5	N	UPL
6. Vulpia myuros	15	N	UPL
7.			
8.			
= Total Cover	100		
Woody Vine Stratum (Plot size: ____)			
1.			
2. Ø			
= Total Cover			

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

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	0	x 1 = 0
FACW species	0	x 2 = 0
FAC species	0	x 3 = 0
FACU species	15	x 4 = 60
UPL species	85	x 5 = 425
Column Totals:	100 (A)	485 (B)

Prevalence Index = B/A = 4.85

Hydrophytic Vegetation Indicators:

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

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ____ No X

Remarks: upland paired point w/ DP 58 located off trail in annual grassland.

SOIL

Sampling Point: S9

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-20"	10YR3/2							sandy loam

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

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

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

Indicators for Problematic Hydric Soils[3]:

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

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: unknown

Depth (inches): —

Hydric Soil Present? Yes ___ No X

Remarks:

no indicators observed

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) **(Nonriverine)**
- ___ Sediment Deposits (B2) **(Nonriverine)**
- ___ Drift Deposits (B3) **(Nonriverine)**
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): N/A

Water Table Present? Yes ___ No X Depth (inches): /

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): /

Wetland Hydrology Present? Yes ___ No X

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

Remarks:

No indicators observed.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: More Mesa City/County: Goleta / Santa Barbara Sampling Date: 6/4/08
Applicant/Owner: Sun Mesa Inc State: CA Sampling Point: 60
Investigator(s): K. Merk Section, Township, Range: T4N R28W
Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): concave Slope (%): ______
Subregion (LRR): Mediterranean CA Lat: 34.4 Long: -119.8 Datum: ______
Soil Map Unit Name: Baywood loamy sand 2-9% slopes NWI classification: none
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ______ (If no, explain in Remarks.)
Are Vegetation —, Soil —, or Hydrology — significantly disturbed? NO Are "Normal Circumstances" present? Yes X No ______
Are Vegetation —, Soil —, or Hydrology — naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes X No ___	Is the Sampled Area within a Wetland?	Yes ___ No X
Hydric Soil Present?	Yes ___ No X		
Wetland Hydrology Present?	Yes X No ___		

Remarks:
Documents 2 parameter wetland along bluff trail.
Italian ryegrass / Harding grass dominated wetland

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ______)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2. Ø			
3.			
4.			
= Total Cover			
Sapling/Shrub Stratum (Plot size: ______)			
1. Baccharis salicifolia	10	N	FACW
2. (= B. viminea)			
3.			
4.			
5.			
= Total Cover			
Herb Stratum (Plot size: ______)			
1. Lolium perenne ssp. multiflorum	25	Y	FAC+
2. Cyperus eragrostis	10	N	FACW
3. Lythrum hyssopifolium	10	N	FACW
4. Rumex crispus	10	N	FACW
5. Phalaris aquatica	25	Y	FAC*
6. Eleocharis macrostachya	5	N	OBL
7.			
8.			
= Total Cover	95		
Woody Vine Stratum (Plot size: ______)			
1.			
2. Ø			
= Total Cover			

% Bare Ground in Herb Stratum 5 % Cover of Biotic Crust Ø

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)
Total Number of Dominant Species Across All Strata: 2 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = ______

Hydrophytic Vegetation Indicators:

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

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No ______

Remarks:
Topographic low area collects water from trail & neighboring grassland.

SOIL

Sampling Point: 60

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 3/2							sandy loam surface
4-20"	10YR 2/1							clay (with some sand mixing)

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

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

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

Indicators for Problematic Hydric Soils[3]:

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

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):
Type: clay
Depth (inches): below 4"

Hydric Soil Present? Yes ___ No X

Remarks:
no hydric soil indicators observed, low chroma is inherent w/ Diablo clays - Soils map has this area shown as interface between Brywood Sands & Diablo Clay

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- X Surface Water (A1)
- ___ High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- X Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): N/A
Water Table Present? Yes ___ No X Depth (inches): |
Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): |

Wetland Hydrology Present? Yes X No ___

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

Remarks:
observed ponded H2O @ this location in March. Still moist in June. Wetland hydrology indicators present.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: More Mesa City/County: Goleta/Santa Barbara Sampling Date: 6/4/08

Applicant/Owner: Sun Mesa Inc. State: CA Sampling Point: 6

Investigator(s): K. Merk Section, Township, Range: T4N R28W

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

Subregion (LRR): Mediterranean CA Lat: 34.4 Long: -119.8 Datum: ______

Soil Map Unit Name: Diablo Clay / Baywood Loamy Sand interface NWI classification: none

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

Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No ______

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

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

Hydrophytic Vegetation Present?	Yes ______	No X
Hydric Soil Present?	Yes ______	No X
Wetland Hydrology Present?	Yes ______	No X

Is the Sampled Area within a Wetland? Yes ______ No X

Remarks:
Documents upland habitat surrounding seasonal wetland (@ DP60)

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: ______)			
1.			
2.			
3.			
4.			
= Total Cover			
Sapling/Shrub Stratum (Plot size: ______)			
1. Baccharis pilularis	25	Y	UPL
2.			
3.			
4.			
5.			
= Total Cover	25		
Herb Stratum (Plot size: ______)			
1. Phalaris aquatica	35	Y	FAC*
2. Bromus diandrus	20	N	UPL
3. Bromus hordeacous	10	N	FACU
4. Geranium carolinianum	5	N	UPL
5. Vulpia myuros	5	N	UPL
6.			
7.			
8.			
= Total Cover	75		
Woody Vine Stratum (Plot size: ______)			
1. Ø			
2.			
= Total Cover			

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

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 50 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	0	x 1 = 0
FACW species	0	x 2 = 0
FAC species	35	x 3 = 105
FACU species	10	x 4 = 40
UPL species	55	x 5 = 275
Column Totals:	100 (A)	420 (B)

Prevalence Index = B/A = 4.2

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ______ No X

Remarks:
paired upland pt. adjacent to trailside seasonal wetland

SOIL

Sampling Point: 61

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-4"	10YR3/2							sandy loam
4-20	10YR2/1							clay

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

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

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):
Type: clay
Depth (inches): near surface

Hydric Soil Present? Yes ___ No X

Remarks:
No hydric soil indicators present

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

	Yes	No	Depth (inches)
Surface Water Present?		X	N/A
Water Table Present?		X	|
Saturation Present? (includes capillary fringe)		X	|

Wetland Hydrology Present? Yes ___ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
none observed -

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: More Mesa City/County: Goleta / Santa Barbara Sampling Date: 6/4/08

Applicant/Owner: Sun Mesa Inc State: CA Sampling Point: 62

Investigator(s): K. Merk Section, Township, Range: ______

Landform (hillslope, terrace, etc.): ______ Local relief (concave, convex, none): slight Slope (%): ______

Subregion (LRR): Mediterranean CA Lat: 34.4 Long: -119.8 Datum: -

Soil Map Unit Name: Diablo Clay 2-9% slopes NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ______ (If no, explain in Remarks.)

Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No ______

Are Vegetation N, Soil N, or Hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

	Yes	No
Hydrophytic Vegetation Present?	X	X
Hydric Soil Present?		X
Wetland Hydrology Present?	X	

Is the Sampled Area within a Wetland? Yes ______ No X

Remarks: 2 parameter seasonal wetland dominated by Mediterranean barley & Italian ryegrass

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ______)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2. Ø			
3.			
4.			
= Total Cover			
Sapling/Shrub Stratum (Plot size: ______)			
1.			
2.			
3. Ø			
4.			
5.			
= Total Cover			
Herb Stratum (Plot size: ______)			
1. Hordeum marinum ssp. gussoneanum	25	Y	FAC
2. Lythrum hyssopifolium	5	N	FACW
3. Lolium multiflorum	25	Y	FAC*
4. Bromus hordeaceus	15	N	FACU
5. Anagallis arvensis	5	N	FAC
6.			
7.			
8.			
= Total Cover	75		
Woody Vine Stratum (Plot size: ______)			
1.			
2. Ø			
= Total Cover			

% Bare Ground in Herb Stratum 25 % Cover of Biotic Crust Ø

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species ______	x 1 = ______
FACW species ______	x 2 = ______
FAC species ______	x 3 = ______
FACU species ______	x 4 = ______
UPL species ______	x 5 = ______
Column Totals: ______ (A)	______ (B)

Prevalence Index = B/A = ______

Hydrophytic Vegetation Indicators:

- ___ Dominance Test is >50%
- ___ Prevalence Index is ≤3.0[1]
- ___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No ______

Remarks: characterizes trailside puddle w/ dominance of fac. spp.

SOIL

Sampling Point: 62

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-6"	10YR3/2							Sandy loam
>6"	10YR2/1							clay

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5) (**LRR C**)
___ 1 cm Muck (A9) (**LRR D**)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Loamy Mucky Mineral (F1)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)
___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

___ 1 cm Muck (A9) (**LRR C**)
___ 2 cm Muck (A10) (**LRR B**)
___ Reduced Vertic (F18)
___ Red Parent Material (TF2)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):
Type: clay
Depth (inches): >6"

Hydric Soil Present? Yes ___ No X

Remarks:
low chroma is typical for Diablo clay. No hydric soil indicators observed.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

___ Surface Water (A1)
___ High Water Table (A2)
___ Saturation (A3)
___ Water Marks (B1) (**Nonriverine**)
___ Sediment Deposits (B2) (**Nonriverine**)
___ Drift Deposits (B3) (**Nonriverine**)
X Surface Soil Cracks (B6)
___ Inundation Visible on Aerial Imagery (B7)
___ Water-Stained Leaves (B9)
___ Salt Crust (B11)
___ Biotic Crust (B12)
___ Aquatic Invertebrates (B13)
___ Hydrogen Sulfide Odor (C1)
___ Oxidized Rhizospheres along Living Roots (C3)
___ Presence of Reduced Iron (C4)
___ Recent Iron Reduction in Tilled Soils (C6)
___ Thin Muck Surface (C7)
___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

___ Water Marks (B1) (**Riverine**)
___ Sediment Deposits (B2) (**Riverine**)
___ Drift Deposits (B3) (**Riverine**)
___ Drainage Patterns (B10)
___ Dry-Season Water Table (C2)
___ Crayfish Burrows (C8)
___ Saturation Visible on Aerial Imagery (C9)
___ Shallow Aquitard (D3)
___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): N/A
Water Table Present? Yes ___ No X Depth (inches): |
Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): |

Wetland Hydrology Present? Yes X No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
Ponded water present in March/April 2008 - Dry, but moist soils in June.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: More Mesa City/County: Goleta/Santa Barbara Sampling Date: 6/4/08

Applicant/Owner: Sun Mesa Inc State: CA Sampling Point: 63

Investigator(s): K. Merk Section, Township, Range: T4N R28W

Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): none Slope (%): ______

Subregion (LRR): Mediterranean CA Lat: 34.4 Long: -119.8 Datum: ______

Soil Map Unit Name: Diablo Clay 2-9% Slopes NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ______ (If no, explain in Remarks.)

Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No ______

Are Vegetation N, Soil N, or Hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ______	No X
Hydric Soil Present?	Yes ______	No X
Wetland Hydrology Present?	Yes ______	No X

Is the Sampled Area within a Wetland? Yes ______ No X

Remarks:
Paired upland pt for DP62

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ______)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2. Ø			
3.			
4.			
= Total Cover			
Sapling/Shrub Stratum (Plot size: ______)			
1. Baccharis pilularis	15	N	UPL
2.			
3.			
4.			
5.			
= Total Cover	15		
Herb Stratum (Plot size: ______)			
1. Bromus diandrus	25	Y	UPL
2. Bromus hordeaceus	15	N	FACU
3. Phalaris aquatica	25	Y	FAC*
4. Vulpia myuros	10	N	UPL
5. Geranium carolinianum	5	N	UPL
6. Vicia villosa	5	N	UPL
7.			
8.			
= Total Cover	85		
Woody Vine Stratum (Plot size: ______)			
1.			
2. Ø			
= Total Cover			

% Bare Ground in Herb Stratum Ø % Cover of Biotic Crust Ø

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	1	(A)
Total Number of Dominant Species Across All Strata:	2	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	50	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	0	x 1 = 0
FACW species	0	x 2 = 0
FAC species	25	x 3 = 75
FACU species	15	x 4 = 60
UPL species	60	x 5 = 300
Column Totals:	100 (A)	435 (B)

Prevalence Index = B/A = ______

Hydrophytic Vegetation Indicators:

- ___ Dominance Test is >50%
- ___ Prevalence Index is ≤3.0[1]
- ___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ______ No X

Remarks:
characterizes annual grassland – Phalaris grassland interface.

SOIL

Sampling Point: 63

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-6"	10YR3/2							Sandy loam
6-20"	10YR2/1							Clay w/ some sand mixing

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):
Type: Clay
Depth (inches): @6"

Hydric Soil Present? Yes ___ No X

Remarks:
no hydric soil indicators observed. low chroma is typical for Diablo Clay

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): N/A
Water Table Present? Yes ___ No X Depth (inches): |
Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): |

Wetland Hydrology Present? Yes ___ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:
—

Remarks:
None observed

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Nuove Mesa City/County: Goleta/Santa Barbara Sampling Date: 6/4/08

Applicant/Owner: Sun Mesa Inc. State: CA Sampling Point: 64

Investigator(s): K. Merk Section, Township, Range: ______

Landform (hillslope, terrace, etc.): ______ Local relief (concave, convex, none): ______ Slope (%): ______

Subregion (LRR): Mediterranean CA Lat: ______ Long: ______ Datum: ______

Soil Map Unit Name: Diablo Clay 2-9% slopes NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ______ (If no, explain in Remarks.)

Are Vegetation –, Soil –, or Hydrology – significantly disturbed? No Are "Normal Circumstances" present? Yes X No ______

Are Vegetation –, Soil –, or Hydrology – naturally problematic? No (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X No ______	Is the Sampled Area within a Wetland? Yes X No ______
Hydric Soil Present?	Yes X No ______	
Wetland Hydrology Present?	Yes X No ______	

Remarks:
Documents Mediterranean barley - Italian ryegrass seasonal wetland along trail.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ______)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2. Ø			
3.			
4.			
= Total Cover			
Sapling/Shrub Stratum (Plot size: ______)			
1.			
2. Ø			
3.			
4.			
5.			
= Total Cover			
Herb Stratum (Plot size: ______)			
1. Lolium perenne ssp. multiflorum	35	Y	FAC*
2. Hordeum marinum ssp. gussoneanum	35	Y	FAC
3. Malvella leprosa	10	N	FAC*
4. Eleocharis macrostachya	10	N	OBL
5.			
6.			
7.			
8.			
= Total Cover	90		
Woody Vine Stratum (Plot size: ______)			
1.			
2. Ø			
= Total Cover			

% Bare Ground in Herb Stratum 10 % Cover of Biotic Crust Ø

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	______	x 1 = ______
FACW species	______	x 2 = ______
FAC species	______	x 3 = ______
FACU species	______	x 4 = ______
UPL species	______	x 5 = ______
Column Totals:	______ (A)	______ (B)

Prevalence Index = B/A = ______

Hydrophytic Vegetation Indicators:

X Dominance Test is >50%
__ Prevalence Index is ≤3.0[1]
__ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
__ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No ______

Remarks:
Low area in & surrounding trail. Supports hydrophytes

SOIL

Sampling Point: 64

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-20	10YR 2/1	99	7.5YR 4/8	~1				clay

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: clay

Depth (inches): @surface

Hydric Soil Present? Yes X No ___

Remarks:

low chroma soil w/ redox features present = hydric soil

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- X Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- X Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): N/A

Water Table Present? Yes ___ No X Depth (inches): |

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): |

Wetland Hydrology Present? Yes X No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

sufficient wetland hydrology indicators

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: More Mesa City/County: S.B. County Sampling Date: 6/4/08

Applicant/Owner: Sun Mesa Inc. State: CA Sampling Point: 65

Investigator(s): R. Merk Section, Township, Range: ______

Landform (hillslope, terrace, etc.): ______ Local relief (concave, convex, none): ______ Slope (%): ______

Subregion (LRR): Mediterranean CA Lat: 34.4 Long: -119.8 Datum: ______

Soil Map Unit Name: Diablo Clay 2-9% slopes NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ___ (If no, explain in Remarks.)

Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No ___

Are Vegetation N, Soil N, or Hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ___ No X	Is the Sampled Area within a Wetland? Yes ___ No X
Hydric Soil Present?	Yes ___ No X	
Wetland Hydrology Present?	Yes ___ No X	

Remarks: characterizes upland habitat adjacent to seasonal wetland @ DP 64.

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: ______)			
1.			
2. ∅			
3.			
4.			
= Total Cover			
Sapling/Shrub Stratum (Plot size: ______)			
1. Baccharis pilularis	15	N	UPL
2.			
3.			
4.			
5.			
= Total Cover	15		
Herb Stratum (Plot size: ______)			
1. Phalaris aquatica	55	Y	FAC*
2. Bromus hordeaceus	10	N	FACU
3. Vulpia myuros	10	N	UPL
4. Geranium carolinianum	10	N	UPL
5.			
6.			
7.			
8.			
= Total Cover	85		
Woody Vine Stratum (Plot size: ______)			
1. ∅			
2.			
= Total Cover			

% Bare Ground in Herb Stratum ∅ % Cover of Biotic Crust ∅

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	0	x 1 = 0
FACW species	0	x 2 = 0
FAC species	55	x 3 = 165
FACU species	10	x 4 = 40
UPL species	35	x 5 = 175
Column Totals:	100 (A)	380 (B)

Prevalence Index = B/A = 3.8

Hydrophytic Vegetation Indicators:

- ___ Dominance Test is >50%
- ___ Prevalence Index is ≤3.0[1]
- ___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ___ No X

Remarks: paired upland pt. w/ trailside wetland. area dominated by Harding grass, but contains only upland associate species.

SOIL

Sampling Point: 65

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-20"	10yR 2/1							clay

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: —

Depth (inches): —

Hydric Soil Present? Yes ___ No X

Remarks:

no hydric soil indicators present

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): N/A

Water Table Present? Yes ___ No X Depth (inches): |

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): |

Wetland Hydrology Present? Yes ___ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

None observed

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: More Mesa City/County: Santa Barbara Sampling Date: 6/4/08
Applicant/Owner: Sun Mesa Inc State: CA Sampling Point: 6b
Investigator(s): K. Merk Section, Township, Range: T4N R28W
Landform (hillslope, terrace, etc.): ______ Local relief (concave, convex, none): ______ Slope (%): ______
Subregion (LRR): Mediterranean CA Lat: 34.4 Long: -119.8 Datum: ______
Soil Map Unit Name: Conception fine Sandy loam 2-9% Slopes NWI classification: none
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)
Are Vegetation —, Soil —, or Hydrology — significantly disturbed? NO Are "Normal Circumstances" present? Yes X No ____
Are Vegetation —, Soil —, or Hydrology — naturally problematic? NO (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X No ____	Is the Sampled Area within a Wetland? Yes ____ No X
Hydric Soil Present?	Yes ____ No X	
Wetland Hydrology Present?	Yes X No ____	

Remarks: documents small 2 parameter wetland dominated by Mediterranean barley & Italian ryegrass.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2. Ø			
3.			
4.			
= Total Cover			
Sapling/Shrub Stratum (Plot size: ____)			
1.			
2. Ø			
3.			
4.			
5.			
= Total Cover			
Herb Stratum (Plot size: ____)			
1. Hordeum marinum ssp gussoneanum	35	Y	FAC
2. Lolium perenne ssp. multiflorum	30	Y	FAC*
3. Anagallis arvensis	10	N	FAC
4.			
5.			
6.			
7.			
8.			
= Total Cover	75		
Woody Vine Stratum (Plot size: ____)			
1.			
2. Ø			
= Total Cover			

% Bare Ground in Herb Stratum ±25 % Cover of Biotic Crust Ø

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)
Total Number of Dominant Species Across All Strata: 2 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species		x 1 =
FACW species		x 2 =
FAC species		x 3 =
FACU species		x 4 =
UPL species		x 5 =
Column Totals:	(A)	(B)

Prevalence Index = B/A = ______

Hydrophytic Vegetation Indicators:

- X Dominance Test is >50%
- ___ Prevalence Index is ≤3.0[1]
- ___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No ____

Remarks: trailside seasonal wetland w/ areas of bare soil where ponded H_2O persisted.

SOIL

Sampling Point: 66

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR3/2 → 3/3							sandy loam
12-20	10YR2/2 → 2/1							clay loam

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: —

Depth (inches): —

Hydric Soil Present? Yes ___ No X

Remarks:

no indicators observed.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- X Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ___

Water Table Present? Yes ___ No X Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): ___

Wetland Hydrology Present? Yes X No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

soil moist w/evidence of seasonal ponding present.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: More Mesa City/County: Santa Barbara Sampling Date: 2/18/09

Applicant/Owner: Sun Mesa Inc. State: ______ Sampling Point: 67

Investigator(s): K. Merk Section, Township, Range: T4N R28W

Landform (hillslope, terrace, etc.): ______ Local relief (concave, convex, none): ______ Slope (%): ______

Subregion (LRR): mediterraneanCH Lat: 34.4 Long: -119.8 Datum: ______

Soil Map Unit Name: Concepcion fine sandy loam 2-9% slopes NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes Y No ____ (If no, explain in Remarks.)

Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation N, Soil N, or Hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ____ No X	Is the Sampled Area within a Wetland? Yes ____ No X
Hydric Soil Present?	Yes ____ No X	
Wetland Hydrology Present?	Yes ____ No X	

Remarks: characterizes marine terrace dominated by Hardinggrass

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2. Ø			
3.			
4.			
= Total Cover			
Sapling/Shrub Stratum (Plot size: ____)			
1.			
2. Ø			
3.			
4.			
5.			
= Total Cover			
Herb Stratum (Plot size: ____)			
1. Phalaris aquatica	70	Y	FAC*
2. Plantago lanceolata	15	N	UPL
3. Vicia villosa	5	N	UPL
4. Bromus hordeaceus	10	N	FACU
5.			
6.			
7.			
8.			
= Total Cover	100		
Woody Vine Stratum (Plot size: ____)			
1.			
2. Ø			
= Total Cover			

% Bare Ground in Herb Stratum Ø % Cover of Biotic Crust Ø

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species		x 1 =
FACW species		x 2 =
FAC species	70	x 3 = 210
FACU species	10	x 4 = 40
UPL species	20	x 5 = 100
Column Totals:	100 (A)	350 (B)

Prevalence Index = B/A = ______

Hydrophytic Vegetation Indicators:

X Dominance Test is >50%
__ Prevalence Index is ≤3.0[1]
__ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
__ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ____ No X

Remarks: *while area is dominated by Harding grass (FAC sp), associate species are upland spp.

SOIL

Sampling Point: 67

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-24"	10YR3/2							sandy loam
>24"	10YR4/3							turns into clay

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5) (**LRR C**)
___ 1 cm Muck (A9) (**LRR D**)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Loamy Mucky Mineral (F1)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)
___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

___ 1 cm Muck (A9) (**LRR C**)
___ 2 cm Muck (A10) (**LRR B**)
___ Reduced Vertic (F18)
___ Red Parent Material (TF2)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):
Type: clay
Depth (inches): @ 24"

Hydric Soil Present? Yes ____ No X

Remarks:
no hydric soil indicators observed.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

___ Surface Water (A1)
___ High Water Table (A2)
___ Saturation (A3)
___ Water Marks (B1) (**Nonriverine**)
___ Sediment Deposits (B2) (**Nonriverine**)
___ Drift Deposits (B3) (**Nonriverine**)
___ Surface Soil Cracks (B6)
___ Inundation Visible on Aerial Imagery (B7)
___ Water-Stained Leaves (B9)
___ Salt Crust (B11)
___ Biotic Crust (B12)
___ Aquatic Invertebrates (B13)
___ Hydrogen Sulfide Odor (C1)
___ Oxidized Rhizospheres along Living Roots (C3)
___ Presence of Reduced Iron (C4)
___ Recent Iron Reduction in Tilled Soils (C6)
___ Thin Muck Surface (C7)
___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

___ Water Marks (B1) (**Riverine**)
___ Sediment Deposits (B2) (**Riverine**)
___ Drift Deposits (B3) (**Riverine**)
___ Drainage Patterns (B10)
___ Dry-Season Water Table (C2)
___ Crayfish Burrows (C8)
___ Saturation Visible on Aerial Imagery (C9)
___ Shallow Aquitard (D3)
___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ____ No X Depth (inches): ________
Water Table Present? Yes ____ No X Depth (inches): ________
Saturation Present? (includes capillary fringe) Yes ____ No X Depth (inches): ________

Wetland Hydrology Present? Yes ____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
none observed.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: More Mesa City/County: Santa Barbara Sampling Date: 6/4/08

Applicant/Owner: County of Santa Barbara State: CA Sampling Point: 68

Investigator(s): K. Merk Section, Township, Range: ______

Landform (hillslope, terrace, etc.): ______ Local relief (concave, convex, none): ______ Slope (%): 5-10

Subregion (LRR): Mediterranean CA Lat: 34.4 Long: -119.8 Datum: ______

Soil Map Unit Name: Concepcion fine sandy loam 2-9% slopes NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ______ (If no, explain in Remarks.)

Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No ______

Are Vegetation N, Soil N, or Hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No ______
Hydric Soil Present?	Yes ______	No X
Wetland Hydrology Present?	Yes ______	No X

Is the Sampled Area within a Wetland? Yes ______ No X

Remarks: Documents mesic grassland with meadow barley

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: ______)			
1.			
2. Ø			
3.			
4.			
= Total Cover			
Sapling/Shrub Stratum (Plot size: ______)			
1.			
2. Ø			
3.			
4.			
5.			
= Total Cover			
Herb Stratum (Plot size: ______)			
1. Hordeum brachyantherum	30	Y	FACW
2. Lolium perenne ssp. multiflorum	30	Y	FAC*
3. Vicia villosa ssp. villosa	15	N	UPL
4. Bromus diandrus	5	N	UPL
5. Avena barbata	20	Y	UPL
6.			
7.			
8.			
= Total Cover	100		
Woody Vine Stratum (Plot size: ______)			
1.			
2. Ø			
= Total Cover			

% Bare Ground in Herb Stratum Ø % Cover of Biotic Crust Ø

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 66 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	______	x 1 = ______
FACW species	______	x 2 = ______
FAC species	______	x 3 = ______
FACU species	______	x 4 = ______
UPL species	______	x 5 = ______
Column Totals:	______ (A)	______ (B)

Prevalence Index = B/A = ______

Hydrophytic Vegetation Indicators:

X Dominance Test is >50%

__ Prevalence Index is ≤3.0[1]

__ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

__ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No ______

Remarks: characterizes meadow barley occurrence on County parcel.

SOIL

Sampling Point: 68

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-20"	10yr 3/2							sandy loam

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: —

Depth (inches): —

Hydric Soil Present? Yes ___ No X

Remarks:
no hydric soil indicators present

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): N/A

Water Table Present? Yes ___ No X Depth (inches): |

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): |

Wetland Hydrology Present? Yes ___ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
no wetland hydrology indicators present. Area occurs on hilltop & slope - extends up trail where Hordeum brachyantherum occurs along margins.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: More Mesa City/County: Santa Barbara Sampling Date: 6/4/08

Applicant/Owner: County of Santa Barbara State: CA Sampling Point: 69

Investigator(s): K. Merk Section, Township, Range: ______

Landform (hillslope, terrace, etc.): ______ Local relief (concave, convex, none): ______ Slope (%): 5-10

Subregion (LRR): Mediterranean CA Lat: 34.4 Long: -119.8 Datum: –

Soil Map Unit Name: Concepcion fine sandy loam 2-9% slopes NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ______ (If no, explain in Remarks.)

Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No ______

Are Vegetation N, Soil N, or Hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ______ No X	Is the Sampled Area within a Wetland?	Yes ______ No X
Hydric Soil Present?	Yes ______ No X		
Wetland Hydrology Present?	Yes ______ No X		

Remarks: characterizes grassland outside Meadow barley occurrence.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ______)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2. Ø			
3.			
4.			
= Total Cover			
Sapling/Shrub Stratum (Plot size: ______)			
1.			
2. Ø			
3.			
4.			
5.			
= Total Cover			
Herb Stratum (Plot size: ______)			
1. Avena barbata	30	Y	UPL
2. Bromus diandrus	25	Y	UPL
3. Vulpia myuros	15	N	UPL
4. Carduus pycnocephalus	15	N	UPL
5. Raphanus sativa	5	N	UPL
6. Plantago lanceolata	5	N	FAC-
7. Erodium botrys	5	N	UPL
8.			
= Total Cover			
Woody Vine Stratum (Plot size: ______)			
1.			
2. Ø			
= Total Cover			

% Bare Ground in Herb Stratum Ø % Cover of Biotic Crust Ø

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	______	x 1 = ______
FACW species	______	x 2 = ______
FAC species	______	x 3 = ______
FACU species	______	x 4 = ______
UPL species	______	x 5 = ______
Column Totals:	______ (A)	______ (B)

Prevalence Index = B/A = ______

Hydrophytic Vegetation Indicators:

- ___ Dominance Test is >50%
- ___ Prevalence Index is ≤3.0[1]
- ___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ______ No X

Remarks: grassland dominated by upland annual forbs & grasses.

SOIL

Sampling Point: 69

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-20	10YR3/2							Sandy loam

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) **(LRR C)**
- ___ 1 cm Muck (A9) **(LRR D)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR C)**
- ___ 2 cm Muck (A10) **(LRR B)**
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: —

Depth (inches): —

Hydric Soil Present? Yes ____ No X

Remarks:

no hydric soil indicators observed.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) **(Nonriverine)**
- ___ Sediment Deposits (B2) **(Nonriverine)**
- ___ Drift Deposits (B3) **(Nonriverine)**
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) **(Riverine)**
- ___ Sediment Deposits (B2) **(Riverine)**
- ___ Drift Deposits (B3) **(Riverine)**
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ____ No X Depth (inches): N/A

Water Table Present? Yes ____ No X Depth (inches): ____

Saturation Present? (includes capillary fringe) Yes ____ No X Depth (inches): ____

Wetland Hydrology Present? Yes ____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No indicators present

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: More Mesa City/County: Santa Barbara Sampling Date: 8/29/08

Applicant/Owner: County of Santa Barbara State: CA Sampling Point: 70

Investigator(s): K. Merk Section, Township, Range: T4N R28W

Landform (hillslope, terrace, etc.): Local relief (concave, convex, none): Slope (%):

Subregion (LRR): Mediterranean CA Lat: Long: Datum:

Soil Map Unit Name: Concepcion fine sandy loam 2-9% slopes NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ___ (If no, explain in Remarks.)

Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No ___

Are Vegetation N, Soil N, or Hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X No ___	Is the Sampled Area within a Wetland? Yes X No ___
Hydric Soil Present?	Yes X No ___	
Wetland Hydrology Present?	Yes X No ___	

Remarks: Italian ryegrass dominated seasonal wetland along trail.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ___)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2. Ø			
3.			
4.			
= Total Cover			
Sapling/Shrub Stratum (Plot size: ___)			
1.			
2. Ø			
3.			
4.			
5.			
= Total Cover			
Herb Stratum (Plot size: ___)			
1. Crypsis schoenoides	20	Y	OBL
2. Polypogon monspeliensis	20	Y	FACW+
3. Rumex crispus	15	N	FACW-
4. Lolium perenne ssp. multiflorum	25	Y	FAC*
5. Phalaris aquatica	5	N	FAC
6. Cynodon dactylon	5	N	FAC
7.			
8.			
= Total Cover	90		
Woody Vine Stratum (Plot size: ___)			
1.			
2. Ø			
= Total Cover			

% Bare Ground in Herb Stratum 10 % Cover of Biotic Crust Ø

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species ___	x 1 = ___
FACW species ___	x 2 = ___
FAC species ___	x 3 = ___
FACU species ___	x 4 = ___
UPL species ___	x 5 = ___
Column Totals: ___ (A)	___ (B)

Prevalence Index = B/A = ___

Hydrophytic Vegetation Indicators:

- ___ Dominance Test is >50%
- ___ Prevalence Index is ≤3.0[1]
- ___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No ___

Remarks: Characterizes trailside depression (looks to be enhanced by offroad vehicle)

SOIL

Sampling Point: 7D

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-20	10YR 3/2	90-95	2.5YR 4/8	± 5-10				Sandy loam w/oxidized rhizospheres

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) **(LRR C)**
- ___ 1 cm Muck (A9) **(LRR D)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR C)**
- ___ 2 cm Muck (A10) **(LRR B)**
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):
Type: unknown
Depth (inches): –

Hydric Soil Present? Yes X No ___

Remarks:
low chroma of 2 w/ redox features = hydric soil

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- X Water Marks (B1) **(Nonriverine)**
- ___ Sediment Deposits (B2) **(Nonriverine)**
- ___ Drift Deposits (B3) **(Nonriverine)**
- X Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- X Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) **(Riverine)**
- ___ Sediment Deposits (B2) **(Riverine)**
- ___ Drift Deposits (B3) **(Riverine)**
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): N/A
Water Table Present? Yes ___ No X Depth (inches): |
Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): |

Wetland Hydrology Present? Yes X No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
depression collects & holds water seasonally.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: More Mesa City/County: Santa Barbara Sampling Date: 8/29/08

Applicant/Owner: County of Santa Barbara State: CA Sampling Point: 71

Investigator(s): K. Merk Section, Township, Range: ______

Landform (hillslope, terrace, etc.): ______ Local relief (concave, convex, none): slight Slope (%): 5

Subregion (LRR): Mediterranean CA Lat: ______ Long: ______ Datum: ______

Soil Map Unit Name: Conception fine sandy loam 2-9% slopes NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ___ (If no, explain in Remarks.)

Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No ___

Are Vegetation N, Soil N, or Hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ___ No X	Is the Sampled Area within a Wetland? Yes ___ No X
Hydric Soil Present?	Yes ___ No X	
Wetland Hydrology Present?	Yes ___ No X	

Remarks: Documents upland habitat adj. to seasonal wetland paired pt. for DP 70

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ___)	Absolute % Cover	Dominant Species?	Indicator Status
1. Ø			
2.			
3.			
4.			
= Total Cover			
Sapling/Shrub Stratum (Plot size: ___)			
1. Ø			
2.			
3.			
4.			
5.			
= Total Cover			
Herb Stratum (Plot size: ___)			
1. Avena barbata	25	Y	UPL
2. Bromus diandrus	30	Y	UPL
3. Vulpia myuros	20	N	UPL
4. Lolium perenne ssp. multiflorum	15	N	FAC*
5. Erodium botrys	5	N	UPL
6. Phalaris aquatica	5	N	FAC*
7.			
8.			
= Total Cover	100		
Woody Vine Stratum (Plot size: ___)			
1. Ø			
2.			
= Total Cover			

% Bare Ground in Herb Stratum Ø % Cover of Biotic Crust Ø

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	___	x 1 = ___
FACW species	___	x 2 = ___
FAC species	___	x 3 = ___
FACU species	___	x 4 = ___
UPL species	___	x 5 = ___
Column Totals:	___ (A)	___ (B)

Prevalence Index = B/A = ___

Hydrophytic Vegetation Indicators:

- ___ Dominance Test is >50%
- ___ Prevalence Index is ≤3.0[1]
- ___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ___ No X

Remarks: Paired pt. for DP 70 (see DP 69 for comparison)

SOIL

Sampling Point: 71

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-20	10YR3/2							sandy loam

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5) **(LRR C)**
___ 1 cm Muck (A9) **(LRR D)**
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Loamy Mucky Mineral (F1)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)
___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

___ 1 cm Muck (A9) **(LRR C)**
___ 2 cm Muck (A10) **(LRR B)**
___ Reduced Vertic (F18)
___ Red Parent Material (TF2)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):
Type: —
Depth (inches): —

Hydric Soil Present? Yes ___ No X

Remarks:
no hydric soil indicators observed

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

___ Surface Water (A1)
___ High Water Table (A2)
___ Saturation (A3)
___ Water Marks (B1) **(Nonriverine)**
___ Sediment Deposits (B2) **(Nonriverine)**
___ Drift Deposits (B3) **(Nonriverine)**
___ Surface Soil Cracks (B6)
___ Inundation Visible on Aerial Imagery (B7)
___ Water-Stained Leaves (B9)
___ Salt Crust (B11)
___ Biotic Crust (B12)
___ Aquatic Invertebrates (B13)
___ Hydrogen Sulfide Odor (C1)
___ Oxidized Rhizospheres along Living Roots (C3)
___ Presence of Reduced Iron (C4)
___ Recent Iron Reduction in Tilled Soils (C6)
___ Thin Muck Surface (C7)
___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

___ Water Marks (B1) **(Riverine)**
___ Sediment Deposits (B2) **(Riverine)**
___ Drift Deposits (B3) **(Riverine)**
___ Drainage Patterns (B10)
___ Dry-Season Water Table (C2)
___ Crayfish Burrows (C8)
___ Saturation Visible on Aerial Imagery (C9)
___ Shallow Aquitard (D3)
___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): N/A
Water Table Present? Yes ___ No X Depth (inches): |
Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): |

Wetland Hydrology Present? Yes ___ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
none observed

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: More Mesa City/County: Goleta / Santa Barbara Sampling Date: 5/9/08

Applicant/Owner: Sun Mesa Inc. State: CA Sampling Point: 72

Investigator(s): K Merk, S. Christopher Section, Township, Range:

Landform (hillslope, terrace, etc.): Local relief (concave, convex, none): slight impoundment Slope (%): –

Subregion (LRR): Mediterranean CA Lat: – Long: – Datum: –

Soil Map Unit Name: Concepcion fine sandy loam 2-9% slopes NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)

Are Vegetation –, Soil –, or Hydrology – significantly disturbed? No Are "Normal Circumstances" present? Yes X No ____

Are Vegetation –, Soil –, or Hydrology – naturally problematic? No (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No ____
Hydric Soil Present?	Yes X	No ____
Wetland Hydrology Present?	Yes X	No ____

Is the Sampled Area within a Wetland? Yes X No ____

Remarks: Documents curlydock dominated seasonal wetland under Eucalyptus. Spoils piles have created an impoundment in proximity of old drainage rerouted to East property line.

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
= Total Cover	100		
Sapling/Shrub Stratum (Plot size: ____)			
1.			
2. Ø			
3.			
4.			
5.			
= Total Cover			
Herb Stratum (Plot size: ____)			
1. Rumex crispus	75	Y	FACW-
2. Lolium perenne ssp. multiflorum	20	N	FAC*
3. Eleocharis macrostachya	±3	N	OBL
4. Malvella leprosa	±2	N	FAC*
5.			
6.			
7.			
8.			
= Total Cover	100		
Woody Vine Stratum (Plot size: ____)			
1.			
2. Ø			
= Total Cover			

% Bare Ground in Herb Stratum Ø % Cover of Biotic Crust Ø

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species		x 1 =
FACW species		x 2 =
FAC species		x 3 =
FACU species		x 4 =
UPL species		x 5 =
Column Totals:	(A)	(B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

- ___ Dominance Test is >50%
- ___ Prevalence Index is ≤3.0[1]
- ___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No ____

Remarks: small seasonal wetland under Eucs – apparently formed by stockpiling of soils to the southwest between this location & the riparian wetlands assoc. w/ Drainage B3/B4. Outside Euc canopy area is dominated by weedy spp – Raphanus, Conium, Brassica

SOIL

Sampling Point: 72

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-20"	10YR 3/2	90	2.5YR 4/6	10				

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) **(LRR C)**
- ___ 1 cm Muck (A9) **(LRR D)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR C)**
- ___ 2 cm Muck (A10) **(LRR B)**
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):
Type: Unknown
Depth (inches): N/A

Hydric Soil Present? Yes X No ___

Remarks:
positive indicators of hydric soils present

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) **(Nonriverine)**
- ___ Sediment Deposits (B2) **(Nonriverine)**
- ___ Drift Deposits (B3) **(Nonriverine)**
- X Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- X Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) **(Riverine)**
- ___ Sediment Deposits (B2) **(Riverine)**
- ___ Drift Deposits (B3) **(Riverine)**
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): N/A
Water Table Present? Yes ___ No X Depth (inches): -
Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): -

Wetland Hydrology Present? Yes X No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
water is impounded (surface & subsurface) as it moves across the study area in this location. wetland hydrology indicators present

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: More Mesa City/County: Santa Barbara Sampling Date: 5/9/08

Applicant/Owner: Sun Mesa Inc State: CA Sampling Point: 73

Investigator(s): K. Merk, S. Christopher Section, Township, Range:

Landform (hillslope, terrace, etc.): Local relief (concave, convex, none): slight Slope (%): ±3%

Subregion (LRR): Mediterranean CA Lat: 34.4 Long: -119.8 Datum: –

Soil Map Unit Name: Conception fine sandy loam 2-9% slopes NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)

Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation N, Soil N, or Hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ____ No X	Is the Sampled Area within a Wetland? Yes ____ No X
Hydric Soil Present?	Yes ____ No X	
Wetland Hydrology Present?	Yes ____ No X	

Remarks:
Paired upland pt. w/ DP 72

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1. – 4. Ø			
= Total Cover			
Sapling/Shrub Stratum (Plot size: ____)			
1. – 5. Ø			
= Total Cover			
Herb Stratum (Plot size: ____)			
1. Brassica nigra	25	Y	UPL
2. Raphanus sativa	50	Y	UPL
3. Avena barbata	5	N	UPL
4. Bromus diandrus	10	N	UPL
5. Conium maculatum	10	N	FACW
6.			
7.			
8.			
= Total Cover			
Woody Vine Stratum (Plot size: ____)			
1. – 2. Ø			
= Total Cover			

% Bare Ground in Herb Stratum Ø % Cover of Biotic Crust Ø

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: Ø (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- __ Dominance Test is >50%
- __ Prevalence Index is ≤3.0[1]
- __ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- __ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ____ No X

Remarks:
characterizes upland habitat to northeast of seasonal wetland under Eucs.

SOIL

Sampling Point: 73

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-20	10YR3/2							Sandy loam

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5) (**LRR C**)
___ 1 cm Muck (A9) (**LRR D**)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Loamy Mucky Mineral (F1)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)
___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

___ 1 cm Muck (A9) (**LRR C**)
___ 2 cm Muck (A10) (**LRR B**)
___ Reduced Vertic (F18)
___ Red Parent Material (TF2)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: —

Depth (inches): —

Hydric Soil Present? Yes ___ No X

Remarks:

no hydric soil indicators observed.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

___ Surface Water (A1)
___ High Water Table (A2)
___ Saturation (A3)
___ Water Marks (B1) (**Nonriverine**)
___ Sediment Deposits (B2) (**Nonriverine**)
___ Drift Deposits (B3) (**Nonriverine**)
___ Surface Soil Cracks (B6)
___ Inundation Visible on Aerial Imagery (B7)
___ Water-Stained Leaves (B9)
___ Salt Crust (B11)
___ Biotic Crust (B12)
___ Aquatic Invertebrates (B13)
___ Hydrogen Sulfide Odor (C1)
___ Oxidized Rhizospheres along Living Roots (C3)
___ Presence of Reduced Iron (C4)
___ Recent Iron Reduction in Tilled Soils (C6)
___ Thin Muck Surface (C7)
___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

___ Water Marks (B1) (**Riverine**)
___ Sediment Deposits (B2) (**Riverine**)
___ Drift Deposits (B3) (**Riverine**)
___ Drainage Patterns (B10)
___ Dry-Season Water Table (C2)
___ Crayfish Burrows (C8)
___ Saturation Visible on Aerial Imagery (C9)
___ Shallow Aquitard (D3)
___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): N/A
Water Table Present? Yes ___ No X Depth (inches): |
Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): |

Wetland Hydrology Present? Yes ___ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

none observed.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: More Mesa City/County: Santa Barbara Sampling Date: 6/4/08

Applicant/Owner: Sun Mesa Inc. State: CA Sampling Point: 74

Investigator(s): K. Merk Section, Township, Range: ______

Landform (hillslope, ~~terrace~~, etc.): ______ Local relief (concave, convex, ~~none~~): ______ Slope (%): ______

Subregion (LRR): Mediterranean CA Lat: — Long: — Datum: —

Soil Map Unit Name: Concepcion fine sandy loam 2-9% slopes NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ___ (If no, explain in Remarks.)

Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No ___

Are Vegetation N, Soil N, or Hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No ___
Hydric Soil Present?	Yes ___	No X
Wetland Hydrology Present?	Yes ___	No X

Is the Sampled Area within a Wetland? Yes X No ___

Remarks: Documents willow occurrence (scattered) in location of historic drainage now routed along eastern property line

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: ___)			
1.			
2. Ø			
3.			
4.			
= Total Cover			
Sapling/Shrub Stratum (Plot size: ___)			
1. Salix lasiolepis	100	Y	FACW
2.			
3.			
4.			
5.			
= Total Cover			
Herb Stratum (Plot size: ___)			
1.			
2.			
3. Ø			
4.			
5.			
6.			
7.			
8.			
= Total Cover			
Woody Vine Stratum (Plot size: ___)			
1.			
2. Ø			
= Total Cover			

% Bare Ground in Herb Stratum Ø % Cover of Biotic Crust Ø

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species		x 1 =
FACW species		x 2 =
FAC species		x 3 =
FACU species		x 4 =
UPL species		x 5 =
Column Totals:	(A)	(B)

Prevalence Index = B/A = ______

Hydrophytic Vegetation Indicators:

- ___ Dominance Test is >50%
- ___ Prevalence Index is ≤3.0[1]
- ___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No ___

Remarks: Scattered willows in grassland

SOIL

Sampling Point: 74

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-20	10YR 3/2							Sandy loam

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: —

Depth (inches): —

Hydric Soil Present? Yes ___ No X

Remarks: no hydric soil indicators observed

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): N/A

Water Table Present? Yes ___ No X Depth (inches): |

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): |

Wetland Hydrology Present? Yes ___ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Based on review of 1964 topo map, drainage channel was present in this general vicinity - now re-routed to east prop. line. Some high flow events may breach constructed channel (see DP50) & travel in a primarily southwest direction.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: More Mesa City/County: Goleta/Santa Barbara Sampling Date: 6/4/08
Applicant/Owner: Sun Mesa Inc. State: CA Sampling Point: 75
Investigator(s): K. Merk Section, Township, Range: —
Landform (hillslope, terrace, etc.): Local relief (concave, convex, none): Slope (%):
Subregion (LRR): Mediterranean CA Lat: — Long: — Datum: —
Soil Map Unit Name: Concepcion fine sandy loam 2-9% NWI classification: none
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ___ (If no, explain in Remarks.)
Are Vegetation N, Soil N, or Hydrology N significantly disturbed? No Are "Normal Circumstances" present? Yes X No ___
Are Vegetation N, Soil N, or Hydrology N naturally problematic? No (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ___	No X
Hydric Soil Present?	Yes ___	No X
Wetland Hydrology Present?	Yes ___	No X

Is the Sampled Area within a Wetland? Yes ___ No X

Remarks: characterizes upland annual grassland in this area of site.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ___)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2. Ø			
3.			
4.			
= Total Cover			
Sapling/Shrub Stratum (Plot size: ___)			
1. Baccharis pilularis	25	Y	UPL
2.			
3.			
4.			
5.			
= Total Cover	25		
Herb Stratum (Plot size: ___)			
1. Bromus diandrus	25	Y	UPL
2. Avena barbata	25	Y	UPL
3. Bromus hordeaceus	15	N	UPL
4. Geranium carolinianum	10	N	UPL
5.			
6.			
7.			
8.			
= Total Cover	75		
Woody Vine Stratum (Plot size: ___)			
1.			
2. Ø			
= Total Cover			

% Bare Ground in Herb Stratum Ø % Cover of Biotic Crust Ø

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: ___ (A)
Total Number of Dominant Species Across All Strata: ___ (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: ___ (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species ___	x 1 = ___
FACW species ___	x 2 = ___
FAC species ___	x 3 = ___
FACU species ___	x 4 = ___
UPL species ___	x 5 = ___
Column Totals: ___ (A)	___ (B)

Prevalence Index = B/A = ___

Hydrophytic Vegetation Indicators:

- ___ Dominance Test is >50%
- ___ Prevalence Index is ≤3.0[1]
- ___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ___ No X

Remarks: Characterizes sandy upland habitat dominated by coyote brush & various annual grasses. Harding grass occurrences nearby but not w/in plot.

SOIL

Sampling Point: 75

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-20"	10YR 3/2							sandy loam

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5) (**LRR C**)
___ 1 cm Muck (A9) (**LRR D**)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Loamy Mucky Mineral (F1)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)
___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

___ 1 cm Muck (A9) (**LRR C**)
___ 2 cm Muck (A10) (**LRR B**)
___ Reduced Vertic (F18)
___ Red Parent Material (TF2)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):
Type: UNKNOWN
Depth (inches): N/A

Hydric Soil Present? Yes ______ No X

Remarks: No hydric soil indicators present

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

___ Surface Water (A1)
___ High Water Table (A2)
___ Saturation (A3)
___ Water Marks (B1) (**Nonriverine**)
___ Sediment Deposits (B2) (**Nonriverine**)
___ Drift Deposits (B3) (**Nonriverine**)
___ Surface Soil Cracks (B6)
___ Inundation Visible on Aerial Imagery (B7)
___ Water-Stained Leaves (B9)
___ Salt Crust (B11)
___ Biotic Crust (B12)
___ Aquatic Invertebrates (B13)
___ Hydrogen Sulfide Odor (C1)
___ Oxidized Rhizospheres along Living Roots (C3)
___ Presence of Reduced Iron (C4)
___ Recent Iron Reduction in Tilled Soils (C6)
___ Thin Muck Surface (C7)
___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

___ Water Marks (B1) (**Riverine**)
___ Sediment Deposits (B2) (**Riverine**)
___ Drift Deposits (B3) (**Riverine**)
___ Drainage Patterns (B10)
___ Dry-Season Water Table (C2)
___ Crayfish Burrows (C8)
___ Saturation Visible on Aerial Imagery (C9)
___ Shallow Aquitard (D3)
___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ______ No X Depth (inches): N/A
Water Table Present? Yes ______ No X Depth (inches): -
Saturation Present? (includes capillary fringe) Yes ______ No X Depth (inches): -

Wetland Hydrology Present? Yes ______ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: No indicators of wetland hydrology present

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Mesa Mesa City/County: Santa Barbara Sampling Date: 2/19/09

Applicant/Owner: Sun Mesa Inc State: CA Sampling Point: 7b

Investigator(s): K. Merk Section, Township, Range: ______

Landform (hillslope, terrace, etc.): ______ Local relief (concave, convex, none): ______ Slope (%): ______

Subregion (LRR): Mediterranean CA Lat: ______ Long: — Datum: ______

Soil Map Unit Name: Baywood Loamy Sand 2-9% slopes NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ______ (If no, explain in Remarks.)

Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No ______

Are Vegetation N, Soil N, or Hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ______ No X	Is the Sampled Area within a Wetland?	Yes ______ No X
Hydric Soil Present?	Yes ______ No X		
Wetland Hydrology Present?	Yes X No ______		

Remarks:
Documents trail puddle

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ______)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2. Ø			
3.			
4.			
= Total Cover			
Sapling/Shrub Stratum (Plot size: ______)			
1. Baccharis pilularis	15	N	UPL
2.			
3.			
4.			
5.			
= Total Cover			
Herb Stratum (Plot size: ______)			
1. Bromus diandrus	25	Y	UPL
2. Bromus hordeacous	20	N	FACU
3. Vulpia myuros	20	N	UPL
4. Erodium botrys	15	N	UPL
5.			
6.			
7.			
8.			
= Total Cover	75		
Woody Vine Stratum (Plot size: ______)			
1.			
2. Ø			
= Total Cover			

% Bare Ground in Herb Stratum 10 % Cover of Biotic Crust Ø

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species		x 1 =
FACW species		x 2 =
FAC species		x 3 =
FACU species		x 4 =
UPL species		x 5 =
Column Totals:	(A)	(B)

Prevalence Index = B/A = ______

Hydrophytic Vegetation Indicators:

- ___ Dominance Test is >50%
- ___ Prevalence Index is ≤3.0[1]
- ___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ______ No X

Remarks:
localized area of ponded water present in trail vicinity

SOIL

Sampling Point: 76

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-20"	10YR3/2							sandy loam

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) **(LRR C)**
- ___ 1 cm Muck (A9) **(LRR D)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR C)**
- ___ 2 cm Muck (A10) **(LRR B)**
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: —

Depth (inches): —

Hydric Soil Present? Yes ___ No X

Remarks:
no hydric soil indicators observed.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) **(Nonriverine)**
- ___ Sediment Deposits (B2) **(Nonriverine)**
- ___ Drift Deposits (B3) **(Nonriverine)**
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) **(Riverine)**
- ___ Sediment Deposits (B2) **(Riverine)**
- ___ Drift Deposits (B3) **(Riverine)**
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes y No ___ Depth (inches): ± 2"

Water Table Present? Yes y No ___ Depth (inches): @ surface

Saturation Present? (includes capillary fringe) Yes y No ___ Depth (inches): @ surface

Wetland Hydrology Present? Yes X No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
foot traffic compacts soils in topographic low spot / water collects seasonally

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: More Mesa City/County: Santa Barbara Sampling Date: 2/19/09

Applicant/Owner: Sun Mesa Inc. State: CA Sampling Point: 77

Investigator(s): K. Merk Section, Township, Range: ____

Landform (hillslope, terrace, etc.): ____ Local relief (concave, convex, none): ____ Slope (%): ____

Subregion (LRR): Mediterranean CA Lat: — Long: — Datum: —

Soil Map Unit Name: Baywood loamy sands 2-9% slopes NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)

Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation N, Soil N, or Hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ____ No X	Is the Sampled Area within a Wetland? Yes ____ No X
Hydric Soil Present?	Yes ____ No X	
Wetland Hydrology Present?	Yes ____ No X	

Remarks: Additional data point characterizing sandy soils w/ upland species adjacent to bluff trail w/ periodic "puddle" occurrences

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
= Total Cover			
Sapling/Shrub Stratum (Plot size: ____)			
1. Baccharis pilularis	25	y	UPL
2.			
3.			
4.			
5.			
= Total Cover			
Herb Stratum (Plot size: ____)			
1. Avena barbata	20	y	UPL
2. Bromus diandrus	20	y	UPL
3. Geranium carolinianum	5	N	UPL
4. Erodium botrys	5	N	UPL
5. Vulpia myuros	10	N	UPL
6. Bromus hordeaceus	15	N	FACU
7.			
8.			
= Total Cover	75		
Woody Vine Stratum (Plot size: ____)			
1.			
2. Ø			
= Total Cover			

% Bare Ground in Herb Stratum Ø % Cover of Biotic Crust Ø

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	____	x 1 = ____
FACW species	____	x 2 = ____
FAC species	____	x 3 = ____
FACU species	____	x 4 = ____
UPL species	____	x 5 = ____
Column Totals:	____ (A)	____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

- ___ Dominance Test is >50%
- ___ Prevalence Index is ≤3.0[1]
- ___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ____ No X

Remarks:

SOIL

Sampling Point: 77

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-20	10YR3/2							Sandy loam

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) **(LRR C)**
- ___ 1 cm Muck (A9) **(LRR D)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR C)**
- ___ 2 cm Muck (A10) **(LRR B)**
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present): —

Type: ______

Depth (inches): —

Hydric Soil Present? Yes ______ No X

Remarks:

no hydric soil indicators observed

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) **(Nonriverine)**
- ___ Sediment Deposits (B2) **(Nonriverine)**
- ___ Drift Deposits (B3) **(Nonriverine)**
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) **(Riverine)**
- ___ Sediment Deposits (B2) **(Riverine)**
- ___ Drift Deposits (B3) **(Riverine)**
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ______ No X Depth (inches): N/A

Water Table Present? Yes ______ No X Depth (inches): ______

Saturation Present? (includes capillary fringe) Yes ______ No X Depth (inches): ______

Wetland Hydrology Present? Yes ______ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

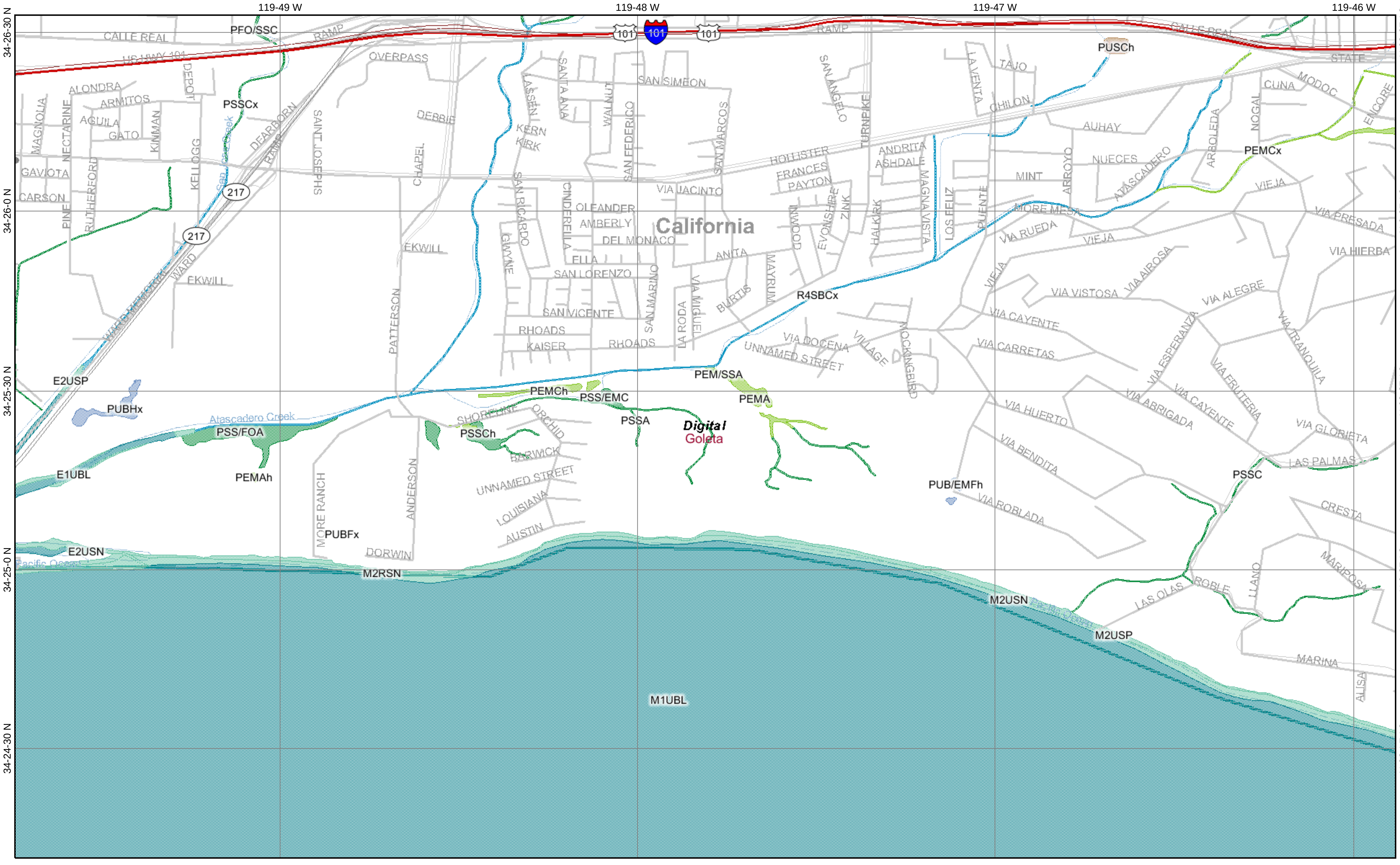
Remarks:

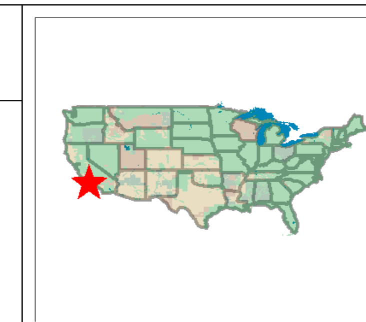
none present

APPENDIX D

NATIONAL WETLANDS INVENTORY MAP

More Mesa NWI Map





Legend

Ohio_wet_scan
- 0
- 1
- Out of range

Interstate
Major Roads
- Other Road
- Interstate
- State highway
- US highway

Roads
Cities
USGS Quad Index 24K
Lower 48 Wetland Polygons
- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other
- Riverine

Lower 48 Available Wetland Data
- Non-Digital
- Digital
- No Data
- Scan

NHD Streams
Counties 100K
States 100K
South America
North America

Scale: 1:21,155

Map center: 34° 25' 22" N, 119° 47' 49" W

APPENDIX E

INVENTORY OF BIRD SPECIES OBSERVED DURING THE MORE MESA BRS 2008 – 2009

							Notable obs 3	Week of General Avian Transect Surveys																											Notable obs 3			
Order and Family	Common name	Scientific name	Federal, State, DFG, or local status 1	Primary Habitat	Occurrence 2	Observed in 1982	3/24	4/14	4/28	5/12	5/26	6/9	6/23	7/7	7/21	8/4	8/18	9/1	9/15	9/29	10/13	10/27	11/10	11/24	12/8	12/29	1/5	1/19	2/2	2/16	3/2	3/16	3/30	4/13	4/27	5/11	5/25	6/8
ANSERIFORMES																																					
Anatidae	Snow goose	*Chen caerulescens*		Marsh/Open Grassland	Accidental	No																	1																
	Brant	*Branta bernicla*	Non listed – SSC	Coast marsh	Accidental	No																														1		
	Canada goose	*Branta canadensis*		Marsh/Open Grassland	Fairly common	No				1					1		1	1	1	1			1									1	1	1	1				
	Mallard	*Anas platyrhynchos*		Wetlands/Marsh	Common	Yes		1	1	1	1	1	1			1		1	1	1		1	1	1		1	1	1	1	1	1	1	1	1				
	Surf scoter	*Melanitta perspicillata*		Ocean	Rare	No																							1		1			1				
	Common merganser	*Mergus merganser*		Ocean	Accidental	No																					1										
	Red-breasted merganser	*Mergus serrator*		Ocean	Rare	No																				1	1		1		1						
GALLIFORMES																																					
Odontophoridae	California quail	*Callipepla californica*		Chaparral, Woodlands	Uncommon	Yes		1	1	1	1	1	1		1	1		1														1						
Phasianidae	Chicken	*Gallus gallus*		Residential/Farm	Common	No							1			1	1		1	1	1			1			1	1				1						
GAVIIFORMES																																					
Gavidae	Red-throated loon	*Gavia stellata*		Ocean	Rare	No																				1	1		1	1	1	1	1	1				
	Pacific loom	*Gavia pacifica*		Fresh water lakes	Accidental	No																														1		
	Common loon	*Gavia immer*	Nesting – SSC	Ocean	Accidental	No																					1										
PODICIPEDIFORMES																																					
Podicipedidae	Horned grebe	*Podiceps auritus*		Ocean	Casual	No																				1			1								
	Western grebe	*Aechmophorus occidentalis*		Ocean	Abundant	No		1	1	1	1	1										1		1	1	1	1	1	1	1	1	1	1	1				
	Clark's grebe	*Aechmophorus clarkii*		Ocean	Abundant	No								1								1		1		1	1	1	1	1	1	1	1	1				
PELECANIFORMES																																					
Pelecanidae	California brown pelican	*Pelecanus occidentalis californicus*	Nesting colony & Communal roosts – FD, SD, FP	Beach/Ocean	Fairly common	No		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Phalacrocoracidae	Double-crested cormorant	*Phalacrocorax auritus*	Rookery site – WL	Beach/Ocean	Fairly common	No		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
CICONIIFORMES																																					
Ardeidae	Great blue heron	*Ardea herodias*	Rookery site – SA	Ocean/Marsh/Lakes/Rivers	Uncommon	Yes		1	1	1		1	1	1	1		1	1				1							1	1	1	1	1	1	1	1		1
	Great egret	*Ardea alba*	Rookery site – SA	Freshwater Estuarine/Marine Wetlands	Uncommon	Yes	1							1				1	1				1	1		1	1	1	1	1	1	1	1	1	1	1			
	Snowy egret	*Egretta thula*	Rookery site – SA	Salt Marsh/Freshwater Marsh	Rare	Yes																								1	1	1	1	1				
	Cattle egret	*Bubulcus ibis*		Estuarine/open grasslands	Very Rare	No																								1								
	Green heron	*Butorides virescens*		Coastal Wetlands	Rare	Yes						1	1	1							1													1					
	Black-crowned night-heron	*Nycticorax nycticorax*	Rookery site – SA	Estuarine/Open Grasslands	Rare	No					1	1	1			1												1			1									
Threskiornithidae	White-faced ibis	*Plegadis chihi*	Rookery site – WL	Freshwater Marsh	Very rare	No	1																															
FALCONIFORMES																																					
Cathartidae	Turkey vulture	*Cathartes aura*		Open Grassland	Common	Yes		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Pandionidae	Osprey	*Pandion haliaetus*	Nesting – WL	Shallow Waters with Elevated Nest Sites	Casual	No													1							1													
Accipitridae	White-tailed kite	*Elanus leucurus*	Nesting – FP	Grassland	Fairly common	Yes		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	Northern harrier	*Circus cyaneus*	Nesting – SSC	Grassland/Marshes	Rare	Yes	1										1	1	1		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1			
	Sharp-shinned hawk	*Accipiter striatus*	Nesting – WL	Woodlands	Rare	Yes															1	1	1			1	1			1	1	1						
	Cooper's hawk	*Accipiter cooperii*	Nesting – WL	Woodlands	Uncommon	Yes		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	Red-shouldered hawk	*Buteo lineatus*		Woodlands/Riparian	Uncommon	Yes		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		1	1	1	1	1	1	1	1
	Red-tailed hawk	*Buteo jamaicensis*		Open Areas near Woodlands	Uncommon	Yes		1	1	1		1	1				1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Falconidae	American kestrel	*Falco sparverius*		Open Grassland	Rare	Yes											1	1	1	1	1	1	1	1	1	1	1	1	1	1	1							
	Merlin	*Falco columbarius*	Wintering – WL	Open/Semi-Open Areas	Rare	No		1																1?										1				
	Peregrine falcon	*Falco peregrinus*	Nesting – FD, SE, FP	Coast/Cliff	Casual	No														1						1						1						1
GRUIFORMES																																					
	Sora	*Porzana carolina*			Casual	No																										1			1			
CHARADRIIFORMES																																					
Charadriidae	Black-bellied plover	*Pluvialis squatarola*		Beach	Uncommon	Yes											1			1	1	1	1	1	1	1	1	1	1									
	Semipalmated plover	*Charadrius semipalmatus*		Beach/Marsh	Casual	No																												1				
	Killdeer	*Charadrius vociferus*		Beach/Mudflat/Grassland	Rare	Yes					1					1		1		1	1		1	1		1							1						
Scolopacidae	Spotted sandpiper	*Actitis macularia*		Beach	Rare	Yes												1			1			1		1					1	1		1				
	Solitary sandpiper	*Tringa solitaria*		Beach	Accidental	Yes		1																													
	Wandering tattler	*Tringa incana*		Beach	Casual	Yes										1	1																				
	Willet	*Catoptrophorus semipalmatus*		Beach	Uncommon	No		1	1						1	1	1					1	1	1	1	1	1	1	1	1	1		1	1				
	Lesser yellowlegs	*Tringa flavipes*		Beach	Accidental	No																		1													
	Whimbrel	*Numenius phaeopus*		Beach	Fairly common	Yes		1	1	1					1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1				
	Long-billed curlew	*Numenius americanus*	Nesting – WL	Beach	Fairly common	No									1		1	1	1	1		1	1	1	1			1						1					1
	Marbled godwit	*Limosa fedoa*		Beach	Fairly common	No		1														1	1	1	1	1	1	1	1	1	1	1	1	1	1				
	Black turnstone	*Arenaria melanocephala*		Beach	Casual	No														1	1																		
	Sanderling	*Calidris alba*		Beach	Abundant	No														1	1	1	1	1	1	1	1	1	1		1		1	1				
	Least sandpiper	*Calidris minutilla*		Beach/Coast Wetlands	Accidental	Yes																												1				
	Red-necked phalarope	*Phalaropus lobatus*		Beach/Fresh water marsh	Accidental	No																														1		
Laridae	Heermann's Gull	*Larus heermanni*		Beach/Ocean	Fairly common	No						1		1		1	1	1	1	1	1	1	1	1			1											
	Ring-billed gull	*Larus delawarensis*		Beach/Ocean	Uncommon	Yes						1											1				1				1	1					
	California gull	*Larus californicus*	Nesting colony – WL	Beach/Ocean/Inland Seas	Uncommon	Yes		1	1		1			1						1			1	1		1				1		1						
	Herring gull	*Larus argentatus*		Beach/Freshwater Shorelines	Accidental	No																									1							
	Western gull	*Larus occidentalis*		Beach/Ocean	Common	Yes		1		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1				
	Caspian tern	*Sterna caspia*		Beach/Freshwater Shorelines	Casual	No				1																							1					
	Forster's tern	*Sterna forsteri*	Nesting colony – SA	Fresh/Saltwater Marshes	Casual	No																			1		1										
	Elegant tern	*Sterna elegans*	Nesting colony – WL	Beach/Estuarine	Uncommon	No						1		1	1	1	1	1	1	1	1	1	1	1	1													

Order and Family	Common name	Scientific name	Federal, State, DFG, or local status 1	Primary Habitat	Occurrence 2	Observed in 1982	Notable obs 3	Week of General Avian Transect Surveys																											Notable obs 3			
							3/24	4/14	4/28	5/12	5/26	6/9	6/23	7/7	7/21	8/4	8/18	9/1	9/15	9/29	10/13	10/27	11/10	11/24	12/8	12/29	1/5	1/19	2/2	2/16	3/2	3/16	3/30	4/13	4/27	5/11	5/25	6/8
COLUMBIFORMES																																						
Columbidae	Rock pigeon	*Columba livia*		Open Scrub/Urban	Common	Yes		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		1	1	1	1	1	1	1	1				
	Eurasian collared-dove	*Streptopelia decaocto*		Urban/Agricultural Fields	Casual	No																					1											
	Mourning dove	*Zenaida macroura*		Open Rural/Urban	Common	Yes		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1				
STRIGIFORMES																																						
Tytonidae	Barn owl	*Tyto alba*		Open Habitats	Rare	No				1							1	1	1	1	1																	
Strigidae	Great horned owl	*Bubo virginianus*		Open woodland	Uncommon	No		1					1					1			1				1	1	1			1			1					
	Short-eared owl **	*Asio flammeus*	Nesting – SSC	Marshes/Grasslands	Very rare	Yes					1																											
	Burrowing owl ++	*Athene cunicularia*	Burrow sites & Some wintering sites – SSC	Grasslands	Very rare	Yes			1																													
CAPRIMULGIFORMES																																						
Caprimulgidae	Common nighthawk	*Chordeiles minor*		Open Fields/Rocky Outcrops	Accidental	No						1																										
APODIFORMES																																						
Apodidae	Black swift	*Cypseloides niger*	Nesting – SSC	Open Woodland/Grasslands	Accidental	No											1																					
	White-throated swift	*Aeronautes saxatalis*	Local interest	Open Woodlands near Hilly Terrain	Uncommon	No		1	1	1	1	1	1								1		1	1	1					1	1	1	1	1			1	
Trochilidae	Anna's hummingbird	*Calypte anna*		Shallow Waters with Elevated Nest Sites	Common	Yes		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1				
	Costa's hummingbird	*Calypte costae*	Nesting – SA	Chaparral/Sage Scrub	Accidental	No																											1					
	Rufous hummingbird	*Selasphorus rufus*	Nesting – SA	Grasslands/Woodlands	Casual	Yes																								1			1					
	Allen's hummingbird	*Selasphorus sasin*	Nesting – SA	Open woodland	Uncommon	Yes			1			1	1	1																1	1	1		1				
	Selasphorus hummingbird	*Selasphorus* sp	Nesting – SA	Grasslands/Woodlands	Uncommon	Yes			1																							1	1	1				
PICIFORMES																																						
Picidae	Acorn woodpecker	*Melanerpes formicivorus*		Foothill Woodlands	Fairly common	Yes		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1				
	Nuttall's woodpecker	*Picoides nuttallii*	Nesting – SA	Oak Woodlands	Uncommon	Yes			1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		1	1	1		1	1	1		1	1	1	1	1
	Downy woodpecker	*Picoides pubescens*		Woodlands	Uncommon	Yes					1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1				
	Northern flicker	*Colaptes auratus*		Open Woodlands	Fairly common	Yes		1													1	1	1	1	1	1	1	1	1	1	1	1	1	1				
PASSERIFORMES																																						
Tyrannidae	Olive-sided flycatcher	*Contopus cooperi*	Nesting – SSC	Open Woodlands	Accidental	No					1																											
	Pacific-slope flycatcher	*Empidonax difficilis*		Woodlands	Uncommon	Yes		1	1	1	1	1	1	1	1																	1	1	1	1				
	Black phoebe	*Sayornis nigricans*		Shorelines/Coast Cliffs	Common	Yes			1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1				
	Say's phoebe	*Sayornis saya*		Open Woodlands/Grasslands	Uncommon	Yes			1										1	1	1	1	1	1	1	1	1	1	1	1	1							
	Ash-throated flycatcher	*Myiarchus cinerascens*		Open/Riparian Woodlands	Rare	Yes		1	1	1	1	1		1	1		1																	1				
	Cassin's kingbird	*Tyrannus vociferans*		Riparian Woodlands	Common	Yes		1					1	1		1	1	1	1	1	1	1	1	1	1	1	1		1	1	1	1	1	1				
	Western kingbird	*Tyrannus verticalis*		Open Woodlands	Fairly common	Yes		1	1	1	1	1	1		1		1	1														1		1				
Laniidae	Loggerhead shrike	*Lanius ludovicianus*	Nesting – SSC	Grasslands	Rare	Yes													1	1	1				1	1	1	1	1	1								
Vireonidae	Hutton's vireo	*Vireo huttoni*		Open Woodlands	Common	Yes		1		1	1	1		1	1	1		1	1	1	1		1	1	1	1	1	1	1	1	1	1	1	1				
	Warbling vireo	*Vireo gilvus*		Riparian Woodlands	Rare	Yes		1	1	1	1	1																										
Corvidae	Western scrub-jay	*Aphelocoma californica*		Scrub/Oak Woodlands	Common	Yes		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1				
	American crow	*Corvus brachyrhynchos*		Open Woodlands/Urban	Abundant	Yes		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1				
Alaudidae	Horned lark	*Eremophila alpestris*		Grasslands/Agricultural Areas	Casual	Yes						1																			1							
Hirundinidae	Northern rough-winged swallow	*Stelgidopteryx serripennis*		Open Areas near Exposed Banks	Uncommon	Yes		1	1	1	1	1	1	1		1		1													1	1	1	1				
	Tree swallow	*Tachycineta bicolor*		Wetland Margins	Casual	No																											1					
	Cliff swallow	*Petrochelidon pyrrhonota*		Open Areas near Cliff Faces	Fairly common	Yes		1	1	1	1	1	1	1	1	1	1	1														1	1	1				
	Barn swallow	*Hirundo rustica*		Open Meadows	Fairly common	Yes		1	1	1	1	1	1	1	1	1	1	1	1													1	1	1				
Paridae	Chestnut-backed chickadee	*Poecile rufescens*		Woodlands	Accidental	No																								1							
	Oak titmouse	*Baeolophus inornatus*	Nesting – SA	Woodlands	Common	Yes		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Aegithalidae	Bushtit	*Psaltriparus minimus*		Oak Woodlands/Shrub	Common	Yes		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1				
Sittidae	White-breasted nuthatch	*Sitta carolinensis*		Woodlands	Rare	Yes					1			1			1		1	1						1								1				
Troglodytidae	Rock wren	*Salpinctes obsoletus*		Rocky Grasslands	Casual	No																			1													
	Bewick's wren	*Thryomanes bewickii*		Open Woodlands	Common	Yes		1		1		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1				
	House wren	*Troglodytes aedon*		Open Woodlands	Common	Yes		1		1		1	1	1	1	1	1	1	1	1	1	1	1	1		1	1	1	1	1	1	1	1	1				
	Marsh wren	*Cistothorus palustris*		Marshlands	Accidental	Yes																					1											
Regulidae	Ruby-crowned kinglet	*Regulus calendula*		Woodlands	Uncommon	Yes															1	1	1	1	1	1	1	1	1	1	1	1	1					
Sylviidae	Blue-gray gnatcatcher	*Polioptila caerulea*		Woodlands	Uncommon	Yes								1		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1						
Turdidae	Hermit thrush	*Catharus guttatus*		Woodlands	Rare	Yes																	1			1				1	1	1	1					
	American robin	*Turdus migratorius*		Open Woodlands	Rare	Yes							1	1											1						1						
Timaliidae	Wrentit	*Chamaea fasciata*		Coastal Scrub/Chaparral	Common	Yes		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1				
Mimidae	Northern mockingbird	*Mimus polyglottos*		Grasslands	Common	Yes		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1				
	California thrasher	*Toxostoma redivivum*		Coastal Foothills	Rare	Yes		1		1	1				1					1			1					1										
Sturnidae	European starling	*Sturnus vulgaris*		Urban/Disturbed Areas	Uncommon	Yes		1	1	1		1	1	1	1		1	1									1			1	1	1	1	1				
Montacillidae	American pipit	*Anthus rubescens*		Mesic Grasslands	Casual	No																	1														
Bombycillidae	Cedar waxwing	*Bombycilla cedrorum*		Open Woodlands	Uncommon	Yes		1	1	1	1												1								1			1				
Ptilogonatidae	Phainopepla	*Phainopepla nitens*		Woodlands	Casual	No								1																							
Parulidae	Orange-crowned warbler	*Vermivora celata*		Riparian/Chaparral	Abundant	Yes		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1				
	Nashville warbler	*Vermivora ruficapilla*		Open Woodlands	Accidental	Yes																													1			
	Yellow warbler	*Dendroica petechia*	Nesting – SSC	Riparian Woodlands	Uncommon	Yes			1	1	1		1	1	1																			1		1	1	1
	Black-throated gray warbler	*Dendroica nigrescens*		Woodlands	Casual	Yes												1																1				
	Yellow-rumped warbler	*Dendroica coronata*		Woodlands	Abundant	Yes		1													1	1	1	1	1	1	1	1	1	1	1	1	1	1				
	Townsend's warbler	*Dendroica townsendi*		Woodlands	Uncommon	Yes				1										1	1	1	1	1	1	1	1	1			1	1						
	Common yellowthroat	*Geothlypis trichas*		Riparian/Open Woodlands	Abundant	Yes		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1				
	Wilson's warbler	*Wilsonia pusilla*		Riparian Woodlands	Uncommon	Yes			1		1				1		1	1				1												1				
	Yellow-breasted chat	*Icteria virens*	Nesting – SSC	Open Riparian/Shrub	Casual	No					1																									1	1	1
Thraupidae	Western tanager	*Piranga ludoviciana*		Open Woodlands	Accidental	Yes																													1			
Emberizidae	Spotted towhee	*Pipilo maculatus*		Open Woodlands/Shrub	Abundant	Yes		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1				
	California towhee	*Pipilo crissalis*		Chaparral/Riparian Woodlands	Abundant	Yes		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1				
	Lark sparrow	*Chondestes grammacus*	Nesting – SA	Open Woodland/Grasslands	Accidental	No																1																
	Savannah sparrow	*Passerculus sandwichensis*	Local interest	Grassland	Common	Yes		1	1										1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1				
	Grasshopper sparrow	*Ammodramus savannarum*	Nesting – SSC	Grassland	Rare	No		1	1	1	1	1	1	1			1																					
	Fox sparrow	*Passerella iliaca*		Forest	Casual	Yes																				1	1											
	Song sparrow	*Melospiza melodia*		Open woodland	Abundant	Yes		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1				

							Notable obs 3	Week of General Avian Transect Surveys																											Notable obs 3			
Order and Family	Common name	Scientific name	Federal, State, DFG, or local status 1	Primary Habitat	Occurrence 2	Observed in 1982	3/24	4/14	4/28	5/12	5/26	6/9	6/23	7/7	7/21	8/4	8/18	9/1	9/15	9/29	10/13	10/27	11/10	11/24	12/8	12/29	1/5	1/19	2/2	2/16	3/2	3/16	3/30	4/13	4/27	5/11	5/25	6/8
	Lincoln's sparrow	*Melospiza lincolnii*		Scrub	Uncommon	Yes		1	1											1	1	1	1	1	1	1	1	1	1	1				1				
	White-crowned sparrow	*Zonotrichia leucophrys*		Scrub	Fairly common	Yes		1	1											1	1	1	1	1	1	1	1	1	1	1	1	1	1	1				
	Golden-crowned sparrow	*Zonotrichia atricapilla*		Scrub	Rare	Yes		1																1			1				1			1				
Cardinalidae	Black-headed grosbeak	*Pheucticus melanocephalus*		Forest	Rare	Yes			1	1	1	1			1																			1				
	Blue grosbeak	*Passerina caerulea*	Local interest	Open woodland	Rare	Yes		1	1	1	1	1	1	1	1	1																			1	1	1	1
	Lazuli bunting	*Passerina amoena*		Open woodland	Accidental	Yes									1																							
Icteridae	Red-winged blackbird	*Agelaius phoeniceus*		Marsh	Abundant	Yes		1	1	1	1	1	1		1	1	1	1	1	1	1			1		1	1	1	1	1	1	1	1	1				
	Western meadowlark	*Sturnella neglecta*	Local interest	Grassland	Common	Yes	1												1	1	1	1	1	1	1	1	1	1	1	1	1	1	1					
	Yellow-headed blackbird	*Xanthocephalus xanthocephalus*	Nesting – SSC	Marsh	Accidental	No				1																												
	Great-tailed grackle	*Quiscalus mexicanus*		Open Woodlands/Grasslands	Accidental	No				1																												
	Brown-headed cowbird	*Molothrus ater*		Grasslands	Rare	Yes			1	1			1																					1				
	Hooded oriole	*Icterus cucullatus*		Open Woodlands	Fairly common	Yes		1	1	1	1	1	1	1	1	1															1		1	1				
	Bullock's oriole	*Icterus bullockii*		Open Woodlands	Uncommon	No		1			1		1	1	1		1															1		1				
Fringillidae	Purple finch	*Carpodacus purpureus*		Open Woodlands	Uncommon	Yes			1?		1									1			1	1						1				1				
	House finch	*Carpodacus mexicanus*		Open Woodlands	Abundant	Yes		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1				
	Lesser goldfinch	*Carduelis psaltria*		Oak Woodlands/Chaparral	Abundant	Yes		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1				
	Lawrence's goldfinch	*Carduelis lawrencei*	Nesting – SA	Open Woodlands	Accidental	Yes															1																	
	American goldfinch	*Carduelis tristis*		Grasslands	Uncommon	Yes				1	1	1	1	1		1		1											1	1		1	1	1				
Passeridae	House sparrow	*Passer domesticus*		Urban/Farmlands	Common	Yes		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1				
Estrildidae	Nutmeg mannikin	*Lonchura punctulata*		Grasslands	Common	No				1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1			1	1	1	1	1	1	1				
					Total species detected			61	57	60	59	58	53	53	56	46	57	56	50	59	61	59	64	66	58	65	65	58	56	66	69	71	68	76				

1

FE – Federally Endangered, **FD** - Federally Delisted, **SE** – State Endangered, **SD** – State Delisted, **ST** – State Threatened, **FP** – California Department of Fish and Game (CDFG) Fully Protected, **SSC** – CDFG Species of Special Concern, **WL** – CDFG Watch List, **SA** – CDFG Special Animal

2

Species relative abundance categories based on detectability during the study period were adapted from Lehman (1994).

3 **

Notable observations - Senstive, local, or raptorial species observed outside of the general transect survey period of mid-April 2008 - mid-April 2009. Note that not all species detected are listed for 3/24/08, 4/27/2009, 5/2009 and 6/2009.

** Feather pile found on 5/29/2008; Identified as short-eared owl by John Schmidt, Peter Gaede, and Paul Collins (Santa Barbara Museum of Natural History) on 6/11/2008; Estimated to be "no more than one week old."

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Burrow with evidence of burrowing owl occupation was discovered on 4/29/2008. No additional burrowing owl activity observed during remainder of field surveys.

APPENDIX F

VISUAL ENCOUNTER SURVEY DATA

Appendix F – Visual Encounter Survey Data

Table 1. Survey and GPS Data

Species[1]	Age	Location	Notes	Time	Date	Max PDOP	Max HDOP	GPS Height	Vert Prec	Horz Prec	Std Dev	Latitude	Longitude
DIPU	Juvenile	road	dead	9:35:19	3/27/2008	4.0	2.2	32.5	3.1	2.0	1.3	34.424285	-119.805581
SCOC	Adult	ground		9:36:03	3/27/2008	2.4	1.3	38.3	2.3	1.4	1.9	34.424279	-119.805593
SCOC	Adult	ground		9:41:05	3/27/2008	2.7	1.5	43.5	2.2	1.0	0.4	34.424527	-119.804158
UTST	Adult	ground		10:26:43	3/27/2008	1.9	1.0	101.8	1.3	0.9	0.4	34.418913	-119.800709
UTST	Juvenile	ground		10:29:07	3/27/2008	1.9	1.0	108.7	1.3	0.9	0.4	34.418818	-119.800685
UTST	Adult	ground		10:32:20	3/27/2008	2.7	1.5	102.5	1.3	1.0	1.6	34.418875	-119.800430
UTST	Adult	ground		10:36:00	3/27/2008	2.1	1.4	108.6	1.0	0.9	2.0	34.418946	-119.800317
SCOC	Adult	ground		10:37:31	3/27/2008	2.1	1.4	109.3	1.0	1.0	0.3	34.418963	-119.800296
UTST	Juvenile	ground		10:46:27	3/27/2008	1.6	0.9	106.0	1.1	0.9	0.4	34.418998	-119.800028
UTST	Juvenile	ground		10:48:23	3/27/2008	2.7	1.5	102.9	1.3	0.9	0.3	34.419010	-119.800025
SCOC	Adult	ground		10:53:00	3/27/2008	2.0	1.3	96.3	1.0	0.8	2.6	34.419993	-119.799951
SCOC	Adult	ground		11:00:44	3/27/2008	2.7	1.8	87.6	1.1	1.0	2.5	34.422521	-119.801072
SCOC	Adult	ground		12:37:06	3/27/2008	3.3	1.6	41.9	1.2	0.8		34.424111	-119.794161
HYRE	Adult		calling	12:38:07	3/27/2008	2.2	1.0	40.8	1.1	0.7	0.8	34.424104	-119.794158
HYRE	Larvae	water		12:41:23	3/27/2008	3.9	2.1	46.4	2.0	1.4	2.5	34.424112	-119.794040
SCOC	Adult	ground		12:58:46	3/27/2008	4.0	3.0	54.0	1.0	1.1	1.4	34.424633	-119.795133
SCOC	Juvenile	ground		13:05:26	3/27/2008	7.9	4.3	114.7	3.2	2.8	16.3	34.424925	-119.795845
BANI	Adult	log		13:13:51	3/27/2008	5.8	4.9	69.2	2.2	1.9	4.6	34.425072	-119.795974
BANI	Adult	log		13:20:02	3/27/2008	7.6	5.4	55.9	2.5	3.2	18.5	34.425232	-119.795872
BANI	Adult	log		13:20:16	3/27/2008	7.5	5.4	27.7	4.2	4.7	0.3	34.425252	-119.795933
BANI	Adult	log		13:24:17	3/27/2008	5.9	3.6	46.6	4.6	3.3	4.1	34.425547	-119.796162
HYRE	Adult		calling	13:39:30	3/27/2008	6.2	3.6	19.6	2.6	1.9	0.7	34.425864	-119.796776
SCOC	Adult	ground		13:39:51	3/27/2008	6.2	3.6	19.3	4.3	2.0	0.4	34.425891	-119.796782
HYRE	Adult		calling	14:02:57	3/27/2008	4.8	1.7	40.2	2.7	1.1	0.9	34.424119	-119.794007
SCOC	Adult	ground		14:18:55	3/27/2008	5.1	2.0	24.1	2.2	1.0	1.2	34.425562	-119.793981
SCOC	Adult	trash		14:45:58	3/27/2008	7.2	2.5	112.3	3.7	1.2	1.7	34.424022	-119.789221
SCOC	Adult	log		15:07:56	3/27/2008	3.3	1.8	122.6	1.5	0.8	0.1	34.422335	-119.786465
SCOC	Juvenile	trash		15:24:41	3/27/2008	2.8	1.8	101.6	1.2	1.2	16.5	34.419787	-119.788102

Appendix F – Visual Encounter Survey Data

Table 1. Survey and GPS Data

Species[1]	Age	Location	Notes	Time	Date	Max PDOP	Max HDOP	GPS Height	Vert Prec	Horz Prec	Std Dev	Latitude	Longitude
DIPU	Adult	ground		15:42:55	3/27/2008	2.3	1.4	114.5	1.2	0.9	0.6	34.418377	-119.792622
HYRE	Larvae	water	dip netted	8:49:39	3/28/2008	2.5	1.2	120.7	0.9	0.6	1.3	34.417546	-119.786968
HYRE	Adult	ground		8:53:01	3/28/2008	2.6	1.2	127.8	0.9	0.5	0.4	34.417563	-119.787031
HYRE	Larvae	water	dip netted	9:18:47	3/28/2008	2.6	1.4	119.8	0.9	0.6	2.0	34.421388	-119.786754
SCOC	Juvenile	ground		9:32:41	3/28/2008	2.7	1.5	113.3	0.9	0.6	0.2	34.420026	-119.791224
HYRE	Eggs	ground		10:39:08	3/28/2008	1.8	1.0	40.7	0.7	0.5	0.8	34.423832	-119.794003
HYRE	Larvae	water	dip netted	10:39:20	3/28/2008	1.9	1.1	40.0	0.7	0.5	1.2	34.423838	-119.794001
HYRE	Adult	water		10:39:44	3/28/2008	2.0	1.1	40.4	0.7	0.5	1.4	34.423840	-119.794002
SCOC	Juvenile	ground		12:14:13	3/28/2008	2.6	1.2	40.0	1.1	0.6	0.6	34.424399	-119.802760
SCOC	Adult	ground		12:18:05	3/28/2008	2.4	1.1	76.3	1.1	0.6	0.3	34.423643	-119.801279
HYRE	Larvae	water		12:36:30	3/28/2008	2.4	1.1	71.5	1.1	0.6	0.8	34.421954	-119.797082
ELMU	Adult	debris		12:42:33	3/28/2008	2.1	1.1	72.1	0.9	0.6	0.5	34.422042	-119.797042
ELMU	Adult	ground		12:48:19	3/28/2008	4.4	3.0	66.8	1.0	0.8	1.8	34.422729	-119.796674
HYRE	Eggs	water		14:18:30	3/28/2008	3.4	1.3	12.8	1.6	0.7	0.1	34.425030	-119.802803
HYRE	Larvae	water	w pond	14:18:39	3/28/2008	3.4	1.3	14.4	1.6	0.7	0.2	34.425027	-119.802802
SCOC	Adult	ground		14:28:15	3/28/2008	3.9	1.7	18.7	1.7	0.8	3.4	34.424879	-119.804913
SCOC	Juvenile	ground		14:33:03	3/28/2008	6.3	2.6	9.8	2.9	1.3	0.4	34.424190	-119.806517
SCOC	Juvenile	ground		14:33:59	3/28/2008	5.3	1.8	20.6	2.2	0.9	1.8	34.424209	-119.806622
SCOC	Juvenile	ground		14:49:27	3/28/2008	3.5	1.6	16.0	1.6	0.9	0.2	34.425531	-119.802025
SCOC	Juvenile	ground		15:11:34	3/28/2008	3.2	2.1	45.4	1.0	0.9	2.4	34.423879	-119.800031
SCOC	Adult	ground		10:28:43	5/15/2008	2.0	1.0	140.5	0.9	0.5	0.5	34.424099	-119.786577
SCOC	Juvenile	ground		10:31:06	5/15/2008	2.2	1.3	135.5	0.9	0.5	0.1	34.423351	-119.786503
SCOC	Adult	debris		10:35:06	5/15/2008	2.5	1.3	133.4	1.0	0.6	0.6	34.422788	-119.786374
SCOC	Adult	debris		10:36:08	5/15/2008	2.2	1.1	135.7	1.0	0.6	0.2	34.422749	-119.786397
SCOC	Juvenile	debris		10:36:22	5/15/2008	2.2	1.1	136.9	1.0	0.6	0.1	34.422748	-119.786398
SCOC	Adult	ground		10:48:35	5/15/2008	4.2	2.0	128.2	1.9	1.0	0.5	34.420891	-119.786458
SCOC	Juvenile	debris		10:53:46	5/15/2008	4.1	1.9	132.2	1.8	1.0	0.5	34.419689	-119.786628
SCOC	Juvenile	debris		10:53:59	5/15/2008	4.1	1.9	138.0	1.8	1.0	0.6	34.419690	-119.786632

Appendix F – Visual Encounter Survey Data

Table 1. Survey and GPS Data

Species[1]	Age	Location	Notes	Time	Date	Max PDOP	Max HDOP	GPS Height	Vert Prec	Horz Prec	Std Dev	Latitude	Longitude
SCOC	Adult	branches		10:54:59	5/15/2008	7.7	4.4	141.2	2.0	1.1	5.8	34.419590	-119.786712
SCOC	Juvenile	log		11:01:04	5/15/2008	2.3	1.2	129.6	1.0	0.6	0.2	34.418798	-119.786789
SCOC	Adult	ground		11:16:59	5/15/2008	2.6	1.4	126.3	1.1	0.7	0.1	34.418054	-119.790246
SCOC	Juvenile	ground		11:28:53	5/15/2008	2.4	1.2	114.6	1.1	0.6	0.2	34.420272	-119.792415
SCOC	Adult	ground		9:52:25	5/16/2008	3.3	1.2	102.6	1.6	0.6	0.1	34.420594	-119.801841
SCOC	Adult	ground		10:12:55	5/16/2008	2.0	1.0	105.4	0.9	0.5	0.0	34.418545	-119.800234
SCOC	Adult	ground		10:20:33	5/16/2008	2.0	1.0	105.5	0.9	0.5	0.0	34.418735	-119.799917
SCOC	Adult	ground		10:21:10	5/16/2008	2.0	1.0	105.6	0.9	0.5	0.0	34.418679	-119.799955
SCOC	Adult	ground		10:23:12	5/16/2008	2.1	1.1	101.2	0.9	0.7	0.1	34.418532	-119.799760
SCOC	Adult	ground		10:28:17	5/16/2008	1.9	1.0	103.6	0.9	0.5	0.0	34.418503	-119.799654
SCOC	Adult	ground			5/16/2008	1.9	1.0	103.6	0.9	0.5	0.1	34.418502	-119.799654
UTST	Adult	ground		10:29:37	5/16/2008	1.9	1.0	103.1	0.9	0.5	0.5	34.418293	-119.799520
UTST	Adult	ground		10:30:01	5/16/2008	1.9	1.0	102.6	0.9	0.5	0.1	34.418294	-119.799521
SCOC	Juvenile	ground		13:52:51	5/16/2008	3.8	3.1	131.3	1.0	0.8	0.8	34.417829	-119.788762
SCOC	Adult	ground		14:11:41	5/16/2008	3.7	1.8	118.2	1.7	0.9	0.1	34.418286	-119.792168
SCOC	Adult	ground		14:12:21	5/16/2008	3.7	1.7	117.2	1.7	0.9	0.0	34.418333	-119.792446
SCOC	Adult	board		10:56:07	5/29/2008	3.7	1.3	105.1	10.7	5.8	1.0	34.421075	-119.788145
SCOC	Adult	ground		10:58:10	5/29/2008	6.4	1.7	114.4	14.6	6.0	0.2	34.420272	-119.788160
SCOC	Adult	ground			5/29/2008	4.1	1.3	128.4	11.3	5.8	0.2	34.417847	-119.788969
SCOC	Adult	ground			5/29/2008	3.5	1.2	113.6	10.4	5.8	0.3	34.418170	-119.791944
SCOC	Adult	ground		11:37:56	5/29/2008	4.2	1.7	56.2	11.2	6.0	0.2	34.423970	-119.794784
SCOC	Adult	ground			5/29/2008	5.0	1.8	58.4	11.0	6.1	0.5	34.424011	-119.794736
ELMU	Adult	ground		13:29:19	5/29/2008	5.1	2.0	13.4	12.4	6.2	0.1	34.424110	-119.807148
SCOC	Juvenile	ground		13:45:38	5/29/2008	3.7	1.6	4.7	10.4	6.0	0.8	34.424893	-119.803056
SCOC	Juvenile	board		13:56:41	5/29/2008	3.1	1.5	21.3	9.6	5.9	0.3	34.425584	-119.801725
SCOC	Adult	ground		14:23:01	5/29/2008	2.1	1.1	61.0	8.1	5.7	0.1	34.424097	-119.795830
SCOC	Adult	ground		14:25:29	5/29/2008	5.0	2.6	43.3	9.1	6.0	1.4	34.423882	-119.797321
SCOC	Adult	ground			5/29/2008	3.6	1.3	131.8	10.5	5.8	0.2	34.418871	-119.788568

Appendix F – Visual Encounter Survey Data

Table 1. Survey and GPS Data

Species[1]	Age	Location	Notes	Time	Date	Max PDOP	Max HDOP	GPS Height	Vert Prec	Horz Prec	Std Dev	Latitude	Longitude
SCOC	Adult	ground			5/29/2008	4.3	2.8	142.7	10.4	5.9	1.2	34.417863	-119.788873
SCOC	Juvenile	ground		16:05:36	5/29/2008	3.5	1.3	141.9	10.4	5.8	1.2	34.417859	-119.788939
SCOC	Adult	ground		16:06:08	5/29/2008	3.5	1.3	143.4	10.4	5.8	0.1	34.417844	-119.789036
SCOC	Adult	ground			5/29/2008	3.3	1.3	134.8	10.1	5.8	0.4	34.417925	-119.790024
SCOC	Adult	ground			5/29/2008	2.1	1.2	132.1	8.0	5.8	1.2	34.418744	-119.796032
SCOC	Adult	ground		16:27:05	5/29/2008	2.2	1.2	125.0	8.2	5.7	0.2	34.418797	-119.796279
SCOC	Adult	ground		16:28:23	5/29/2008	2.1	1.2	122.3	8.2	5.7	0.1	34.418830	-119.796876
SCOC	Adult	ground			5/29/2008	5.7	2.8	134.6	9.1	6.0	1.9	34.418490	-119.797807
UTST	Adult	ground		16:46:53	5/29/2008	3.0	2.0	108.0	8.4	5.9	0.8	34.418698	-119.800792
SCOC	Adult	ground		16:50:00	5/29/2008	2.5	1.6	107.0	8.2	5.8	0.6	34.418641	-119.800565
SCOC	Juvenile	ground		11:15:44	5/30/2008	5.5	1.6	59.3	4.1	1.7	0.6	34.423664	-119.797439
SCOC	Adult	ground		11:17:43	5/30/2008	5.9	2.1	58.2	4.6	1.6	0.1	34.423505	-119.797652
ELMU	Adult	ground		11:27:37	5/30/2008	3.9	1.9	87.1	2.0	1.2	0.5	34.421638	-119.797293
SCOC	Adult	debris			5/30/2008	3.5	1.5	93.0	2.1	1.0	0.6	34.421587	-119.797374
SCOC	Adult	ground		11:35:10	5/30/2008	4.3	1.8	93.3	1.6	0.9	0.2	34.421483	-119.796818
SCOC	Adult	ground		11:35:29	5/30/2008	2.7	1.2	93.5	1.9	1.0	0.8	34.421480	-119.796828
SCOC	Adult	ground		11:55:06	5/30/2008	5.9	3.8	73.8	9.0	6.7	2.6	34.424243	-119.795224
SCOC	Adult	ground		12:27:38	5/30/2008	6.0	3.6	26.9	4.8	4.5	0.9	34.425355	-119.801621
SCOC	Juvenile	ground		12:39:46	5/30/2008	6.0	3.6	35.4	3.7	2.8	1.2	34.424916	-119.804201
SCOC	Adult	ground		16:25:28	5/30/2008	1.9	1.0	100.1	1.0	0.7	0.9	34.422167	-119.796576
HYRE	Larvae	pool		16:54:54	5/30/2008	3.7	2.8	51.4	1.4	1.1	2.5	34.423835	-119.793997
SCOC	Adult	rock		10:56:02	6/12/2008	4.2	1.9	33.8	1.3	1.0	1.2	34.424123	-119.806940
SCOC	Adult	ground		11:04:30	6/12/2008	3.7	1.9	35.6	1.6	1.7	1.4	34.424868	-119.804300
SCOC	Juvenile	ground		11:08:09	6/12/2008	3.2	1.8	23.9	1.3	1.4	0.3	34.424837	-119.803969
HYRE	Adult	pitfall lid		11:23:49	6/12/2008	4.1	2.5	20.9	1.9	1.6	1.9	34.424650	-119.802500
HYRE	Meta	ground	drainage	11:54:24	6/12/2008	3.5	2.6	34.2	2.4	1.9	18.1	34.425073	-119.801465
SCOC	Adult	ground		12:04:29	6/12/2008	5.1	2.8	21.9	3.7	2.4	1.2	34.425721	-119.801171
SCOC	Adult	ground		12:53:45	6/12/2008	2.7	1.6	37.8	1.3	1.0	###	34.424398	-119.795405

Appendix F – Visual Encounter Survey Data

Table 1. Survey and GPS Data

Species[1]	Age	Location	Notes	Time	Date	Max PDOP	Max HDOP	GPS Height	Vert Prec	Horz Prec	Std Dev	Latitude	Longitude
SCOC	Adult	ground		12:59:09	6/12/2008	3.9	2.2	71.3	0.9	0.7	56.7	34.423848	-119.797505
SCOC	Juvenile	ground		13:14:06	6/12/2008	4.9	2.2	60.4	1.9	1.2	0.9	34.423857	-119.800031
SCOC	Adult	ground		15:10:04	6/12/2008	2.3	1.2	119.0	1.3	0.6	2.7	34.423407	-119.787244
UTST	Adult	ground		16:35:43	6/12/2008	1.7	1.0	103.1	0.9	0.7	0.4	34.418609	-119.800509
SCOC	Adult	ground		16:41:02	6/12/2008	1.8	1.0	108.1	0.7	0.6	1.6	34.418717	-119.800762
SCOC	Juvenile	log		10:48:07	6/13/2008	4.9	3.0	36.7	2.2	1.9	1.6	34.424878	-119.804479
SCOC	Adult	ground		11:20:09	6/13/2008	4.2	3.2	66.8	1.4	1.6	1.9	34.424036	-119.795094
SCOC	Adult	ground		11:22:37	6/13/2008	5.4	2.9	58.3	1.8	1.2	2.0	34.423996	-119.796774
SCOC	Adult	ground		11:24:45	6/13/2008	4.5	3.4	53.3	1.0	1.5	1.3	34.423846	-119.797849
SCOC	Juvenile	ground		11:37:24	6/13/2008	4.5	2.8	46.9	2.3	1.6	0.9	34.423873	-119.800822
SCOC	Adult	ground		12:15:15	6/13/2008	5.7	2.3	132.1	1.8	0.9	0.6	34.423676	-119.787217
SCOC	Adult	ground		12:16:53	6/13/2008	5.8	2.3	127.7	1.9	0.8	0.6	34.423482	-119.787232
SCOC	Adult	ground		12:23:23	6/13/2008	6.2	2.3	118.7	3.2	1.3	0.9	34.422392	-119.787726
SCOC	Adult	ground		12:52:48	6/13/2008	3.6	1.3	130.7	1.5	0.8	0.7	34.417902	-119.789867
UTST	Adult	ground		13:11:45	6/13/2008	2.4	1.4	104.7	1.4	1.3	0.9	34.418557	-119.799204
SCOC	Adult	ground		10:59:30	7/10/2008	3.5	1.5	110.0	1.1	0.6	1.5	34.419073	-119.797513
UTST	Adult	ground		11:03:02	7/10/2008	5.0	2.4	116.1	1.5	0.9	0.6	34.418691	-119.797322
UTST	Hatchling	ground		11:12:46	7/10/2008	3.4	2.1	116.5	1.0	0.7	0.8	34.418634	-119.797383
UTST	Adult	ground		11:14:14	7/10/2008	2.5	1.5	116.9	0.8	0.7	0.9	34.418573	-119.797502
UTST	Adult	ground		11:16:35	7/10/2008	2.5	1.5	114.2	0.8	0.6	0.5	34.418510	-119.797822
UTST	Adult	ground		11:17:02	7/10/2008	2.3	1.1	117.3	1.1	0.8	0.9	34.418509	-119.797884
UTST	Adult	ground		11:18:41	7/10/2008	2.3	1.1	115.3	1.0	0.7	0.9	34.418503	-119.798014
UTST	Adult	ground		11:21:23	7/10/2008	2.9	1.6	109.1	1.1	0.8	0.2	34.418520	-119.798643
UTST	Adult	ground		11:22:54	7/10/2008	2.2	1.1	113.1	0.8	0.6	0.1	34.418541	-119.798806
SCOC	Adult	ground		11:27:15	7/10/2008	2.4	1.3	111.9	1.0	0.6	0.5	34.418725	-119.799376
UTST	Adult	ground		11:35:56	7/10/2008	2.8	1.5	116.5	0.9	0.6	1.3	34.418454	-119.799092
UTST	Hatchling	ground		11:36:35	7/10/2008	2.7	1.5	113.2	1.0	0.6	0.3	34.418435	-119.799128
SCOC	Adult	ground		11:38:50	7/10/2008	6.0	4.1	106.9	1.0	0.6	1.4	34.418425	-119.799398

Appendix F – Visual Encounter Survey Data

Table 1. Survey and GPS Data

Species[1]	Age	Location	Notes	Time	Date	Max PDOP	Max HDOP	GPS Height	Vert Prec	Horz Prec	Std Dev	Latitude	Longitude
UTST	Adult	ground		11:40:33	7/10/2008	2.2	1.3	105.9	1.0	0.7	1.2	34.418300	-119.799541
UTST	Adult	ground		11:41:45	7/10/2008	3.1	1.7	98.5	0.9	0.6	1.2	34.418433	-119.799581
UTST	Adult	ground		11:44:33	7/10/2008	2.5	1.4	104.0	1.2	0.8	0.6	34.418784	-119.799864
UTST	Adult	ground		11:48:35	7/10/2008	2.0	1.2	104.3	0.8	0.6	0.5	34.418484	-119.799395
UTST	Adult	ground		11:51:08	7/10/2008	4.4	2.5	106.2	0.9	0.6	0.1	34.418601	-119.799749
SCOC	Adult	ground		11:51:50	7/10/2008	2.8	1.5	101.8	1.0	0.6	0.3	34.418601	-119.799785
SCOC	Adult	ground		11:54:07	7/10/2008	3.4	1.6	113.7	0.9	0.6	0.5	34.418899	-119.800047
SCOC	Adult	ground		11:54:23	7/10/2008	2.1	1.2	112.9	1.0	0.6	0.3	34.418897	-119.800057
SCOC	Adult	ground		11:56:20	7/10/2008	2.8	1.5	106.4	1.1	0.6	0.3	34.418612	-119.800097
SCOC	Adult	log		11:57:20	7/10/2008	2.1	1.2	102.3	0.9	0.6	0.8	34.418680	-119.800162
SCOC	Adult	ground		11:58:05	7/10/2008	2.8	1.5	111.6	1.0	0.6	0.4	34.418695	-119.800214
SCOC	Adult	ground		12:06:35	7/10/2008	2.7	1.5	109.6	1.1	0.7	0.4	34.418850	-119.800675
SCOC	Adult	ground		12:07:39	7/10/2008	1.9	1.2	108.7	0.9	0.6	0.3	34.418808	-119.800765
UTST	Adult	ground		10:19:13	7/11/2008	5.8	2.9	102.8	2.6	1.4	0.1	34.418656	-119.800720
SCOC	Juvenile	ground		10:21:34	7/11/2008	5.8	2.9	96.6	2.5	1.4	0.7	34.418646	-119.800629
SCOC	Adult	ground		10:22:12	7/11/2008	5.4	2.3	96.3	2.7	1.3	3.0	34.418619	-119.800545
UTST	Juvenile	ground		10:22:55	7/11/2008	5.4	2.3	102.0	4.5	2.0	0.9	34.418569	-119.800425
SCOC	Adult	ground		10:30:02	7/11/2008	5.6	2.5	92.6	2.6	1.3	0.9	34.418450	-119.799441
SCOC	Adult	ground		10:42:30	7/11/2008	5.1	1.9	99.4	2.8	1.1	1.4	34.418558	-119.795178
SCOC	Adult	ground		10:44:58	7/11/2008	5.0	2.2	118.7	2.3	1.0	0.5	34.418424	-119.794467
SCOC	Adult	ground		10:51:10	7/11/2008	5.0	2.2	133.1	1.3	0.7	0.9	34.418026	-119.791329
SCOC	Adult	ground		10:52:13	7/11/2008	5.2	2.1	126.3	1.8	0.7	0.3	34.418005	-119.791070
SCOC	Adult	ground		10:55:17	7/11/2008	3.6	1.5	119.7	1.4	0.6	1.4	34.417830	-119.789596
SCOC	Adult	ground		11:01:02	7/11/2008	5.0	2.4	140.0	2.5	1.2	0.5	34.417684	-119.788381
SCOC	Adult	ground		11:02:22	7/11/2008	4.2	1.8	150.2	3.6	1.2	4.6	34.417612	-119.788050
SCOC	Adult	ground		11:03:06	7/11/2008	4.2	1.8	164.3	3.3	1.3	1.4	34.417670	-119.788009
SCOC	Adult	ground		11:08:00	7/11/2008	4.2	2.1	126.7	1.0	0.8	0.7	34.417941	-119.786489
SCOC	Adult	log		11:12:36	7/11/2008	2.5	1.5	141.4	1.3	1.1	3.7	34.419616	-119.786733

Appendix F – Visual Encounter Survey Data

Table 1. Survey and GPS Data

Species[1]	Age	Location	Notes	Time	Date	Max PDOP	Max HDOP	GPS Height	Vert Prec	Horz Prec	Std Dev	Latitude	Longitude
SCOC	Adult	debris		11:31:40	7/11/2008	2.8	1.5	115.6	1.1	0.7	0.5	34.420028	-119.791214
SCOC	Adult	ground		12:20:17	7/11/2008	5.8	1.6	24.7	1.3	0.6	0.5	34.424887	-119.804660
SCOC	Adult	ground		12:21:05	7/11/2008	5.8	1.6	24.5	1.5	0.7	0.7	34.424870	-119.804488
HYRE	Meta	ground		12:46:43	7/11/2008	5.2	1.5	19.2	2.1	0.8	2.7	34.425017	-119.801441
HYRE	Meta	ground		12:47:02	7/11/2008	4.7	1.6	38.1	2.2	0.9	2.1	34.425030	-119.801427
SCOC	Adult	ground		13:01:03	7/11/2008	4.7	2.0	25.3	2.0	1.0	0.7	34.425840	-119.796579
SCOC	Juvenile	ground		13:14:52	7/11/2008	4.2	2.0	62.6	1.5	1.0	1.4	34.424912	-119.795710
SCOC	Adult	ground		11:27:36	7/18/2008	2.5	1.3	98.5	1.1	0.7	0.8	34.421610	-119.797166
SCOC	Adult	ground		11:40:57	7/18/2008	4.8	1.8	66.2	1.6	0.7	0.2	34.424107	-119.795624
SCOC	Adult	ground		11:43:04	7/18/2008	3.9	1.7	62.6	1.7	0.9	0.1	34.423951	-119.795377
SCOC	Adult	ground		11:43:19	7/18/2008	3.9	1.7	64.1	1.6	0.8	0.8	34.423948	-119.795379
SCOC	Adult	ground		11:43:40	7/18/2008	5.2	2.1	68.9	1.9	1.5	0.4	34.423949	-119.795349
SCOC	Hatchling	ground		11:45:14	7/18/2008	4.4	1.8	69.6	1.7	0.8	0.3	34.424056	-119.795118
SCOC	Hatchling	ground		11:49:40	7/18/2008	5.3	2.2	40.5	2.0	1.2	1.4	34.424102	-119.794198
SCOC	Adult	ground		12:54:23	7/18/2008	4.3	3.2	51.2	2.5	2.2	0.8	34.425635	-119.796563
SCOC	Adult	ground		12:57:33	7/18/2008	5.9	4.6	39.5	1.3	1.1	4.2	34.425886	-119.796612
SCOC	Adult	ground		13:04:35	7/18/2008	3.0	2.4	43.5	1.5	1.6	2.2	34.425770	-119.800170
SCOC	Adult	ground		13:06:58	7/18/2008	2.9	2.3	32.5	1.7	1.4	1.1	34.425707	-119.801234
SCOC	Hatchling	ground		14:53:53	7/18/2008	2.2	1.1	106.2	1.0	0.5	0.5	34.419137	-119.799944
SCOC	Juvenile	ground		15:24:55	7/18/2008	2.3	1.3	106.6	1.0	0.5	0.8	34.418650	-119.799474
ELMU	Juvenile	ground	dead	15:29:40	7/18/2008	6.0	5.4	105.9	1.7	1.3	###	34.418963	-119.800583
SCOC	Hatchling	ground		16:14:42	7/18/2008	2.1	1.3	111.9	0.7	0.7	0.8	34.418518	-119.797688
SCOC	Adult	ground		16:18:50	7/18/2008	1.5	0.8	116.5	0.8	0.6	0.6	34.418666	-119.795107
SCOC	Hatchling	ground		16:20:54	7/18/2008	1.5	0.8	119.3	0.8	0.6	0.2	34.418574	-119.793729
SCOC	Hatchling	ground		16:56:27	7/18/2008	2.5	1.3	61.3	0.9	0.5	0.5	34.424002	-119.795876
SCOC	Hatchling	ground		16:57:50	7/18/2008	2.0	1.2	66.5	0.9	0.5	0.7	34.423977	-119.796596
SCOC	Adult	ground		16:58:30	7/18/2008	2.0	1.2	61.6	0.8	0.5	0.1	34.423986	-119.796759
SCOC	Hatchling	ground		17:15:03	7/18/2008	4.8	2.2	21.3	1.5	1.2	1.4	34.424919	-119.803175

Appendix F – Visual Encounter Survey Data

Table 1. Survey and GPS Data

Species[1]	Age	Location	Notes	Time	Date	Max PDOP	Max HDOP	GPS Height	Vert Prec	Horz Prec	Std Dev	Latitude	Longitude
HYRE	Meta	ground	30 individs	17:39:25	7/18/2008	5.6	3.5	21.3	1.7	1.1	3.6	34.425038	-119.801447
HYRE	Meta	ground	30 individs	17:43:58	7/18/2008	4.7	2.6	24.6	1.9	1.2	2.5	34.424990	-119.801338
SCOC	Adult	debris		3:40:15	8/28/2008	4.6	3.3	132.2	1.3	1.0	1.1	34.422887	-119.786416
SCOC	Hatchling	debris		3:42:11	8/28/2008	2.8	1.6	136.0	0.9	0.6	0.9	34.422734	-119.786364
SCOC	Hatchling	debris		3:43:06	8/28/2008	2.0	1.2	129.6	1.0	0.7	0.6	34.422687	-119.786338
SCOC	Hatchling	debris		3:45:18	8/28/2008	2.1	1.3	128.3	0.9	0.6	0.7	34.422301	-119.786395
SCOC	Hatchling	ground		4:00:15	8/28/2008	5.0	2.5	126.3	1.8	0.9	0.4	34.417556	-119.786460
SCOC	Hatchling	ground		4:03:08	8/28/2008	2.0	1.1	129.3	0.9	0.5	0.2	34.417304	-119.786557
SCOC	Hatchling	ground		4:03:27	8/28/2008	2.0	1.1	130.3	1.0	0.6	0.2	34.417303	-119.786557
SCOC	Hatchling	ground		4:05:07	8/28/2008	2.0	1.1	131.4	0.8	0.5	0.3	34.417252	-119.786813
SCOC	Hatchling	ground		4:05:31	8/28/2008	2.0	1.1	129.2	0.8	0.5	0.3	34.417291	-119.786830
SCOC	Juvenile	ground		4:06:45	8/28/2008	2.8	1.5	129.2	1.0	0.6	0.4	34.417335	-119.787056
SCOC	Hatchling	ground		4:14:39	8/28/2008	2.2	1.3	127.1	1.0	0.5	0.8	34.417778	-119.789403
UTST	Juvenile	ground		4:39:53	8/28/2008	3.0	1.9	124.3	1.1	0.5	0.7	34.418007	-119.790440
SCOC	Juvenile	ground		4:41:28	8/28/2008	2.6	1.2	124.8	1.4	0.5	0.4	34.418004	-119.790736
UTST	Juvenile	ground		4:42:18	8/28/2008	2.6	1.2	125.8	1.2	0.5	0.7	34.418029	-119.790842
SCOC	Hatchling	ground		4:50:30	8/28/2008	4.9	2.7	117.2	1.1	0.7	1.5	34.418435	-119.793155
UTST	Juvenile	ground		4:55:53	8/28/2008	3.2	2.4	116.6	1.1	0.8	0.3	34.418427	-119.794694
UTST	Hatchling	ground		4:58:35	8/28/2008	2.4	1.2	117.6	1.2	0.5	0.3	34.418583	-119.795440
UTST	Juvenile	ground		5:02:36	8/28/2008	5.7	3.6	117.4	1.8	0.7	0.3	34.418741	-119.796116
UTST	Adult	ground		5:03:54	8/28/2008	4.6	3.8	118.9	1.3	1.1	2.2	34.418794	-119.796546
UTST	Hatchling	ground		5:05:27	8/28/2008	4.4	3.7	118.5	1.5	0.8	0.8	34.418703	-119.797112
UTST	Juvenile	ground		5:06:13	8/28/2008	4.3	2.8	119.1	1.6	0.9	1.0	34.418693	-119.797203
UTST	Juvenile	ground		5:07:57	8/28/2008	4.3	2.8	120.2	1.5	1.0	1.2	34.418380	-119.797640
UTST	Adult	ground		5:10:48	8/28/2008	4.2	2.9	120.0	1.5	0.8	0.6	34.418489	-119.798517
UTST	Hatchling	ground		5:12:58	8/28/2008	4.2	3.0	111.3	1.1	0.7	3.4	34.418409	-119.799219
SCOC	Adult	ground		5:14:35	8/28/2008	3.3	2.1	104.8	1.2	0.6	0.9	34.418423	-119.799394
UTST	Adult	ground		5:15:28	8/28/2008	2.6	1.5	103.1	1.1	0.6	0.6	34.418415	-119.799571

Appendix F – Visual Encounter Survey Data

Table 1. Survey and GPS Data

Species[1]	Age	Location	Notes	Time	Date	Max PDOP	Max HDOP	GPS Height	Vert Prec	Horz Prec	Std Dev	Latitude	Longitude
UTST	Adult	ground		5:16:30	8/28/2008	3.2	1.6	104.2	1.1	0.6	0.4	34.418306	-119.799533
UTST	Hatchling	ground		5:23:58	8/28/2008	2.3	1.3	103.0	0.9	0.6	0.3	34.419793	-119.800038
SCOC	Hatchling	ground		5:26:03	8/28/2008	2.4	1.4	100.6	0.9	0.6	0.3	34.420276	-119.800061
SCOC	Adult	ground		5:43:21	8/28/2008	2.2	1.3	86.5	1.2	0.7	0.2	34.421549	-119.797075
SCOC	Adult	ground		5:53:13	8/28/2008	4.2	3.6	51.1	0.9	0.6	0.7	34.423792	-119.797491
SCOC	Adult	bush		5:59:11	8/28/2008	2.8	1.5	58.1	1.1	0.7	0.2	34.423969	-119.797233
SCOC	Adult	ground		5:59:41	8/28/2008	2.0	1.1	57.0	0.8	0.8	0.3	34.423992	-119.797083
SCOC	Hatchling	ground		6:02:50	8/28/2008	4.7	2.4	59.0	2.1	1.2	0.4	34.423983	-119.796384
SCOC	Juvenile	ground		6:20:39	8/28/2008	4.5	2.3	70.1	1.0	0.6	0.5	34.425211	-119.797353
SCOC	Juvenile	board		6:23:28	8/28/2008	2.7	1.5	81.8	0.9	0.5	0.5	34.424918	-119.797364
SCOC	Juvenile	ground		6:25:36	8/28/2008	4.5	2.1	81.9	1.0	0.6	0.7	34.424637	-119.796999
SCOC	Hatchling	ground		6:26:37	8/28/2008	4.5	2.1	83.5	1.5	0.8	0.4	34.424581	-119.796780
SCOC	Adult	hole		6:33:19	8/28/2008	5.1	2.2	72.2	1.7	0.8	1.5	34.424127	-119.795547
SCOC	Hatchling	hole		6:35:18	8/28/2008	5.8	3.7	62.5	0.9	0.7	1.4	34.424052	-119.795293
SCOC	Juvenile	hole		6:35:33	8/28/2008	2.5	1.3	63.0	0.9	0.7	0.3	34.424053	-119.795293
SCOC	Juvenile	ground		6:43:26	8/28/2008	4.6	2.3	57.7	1.4	0.7	0.5	34.424154	-119.793494
SCOC	Hatchling	hole		6:50:35	8/28/2008	3.3	1.8	70.7	1.2	0.7	0.3	34.424768	-119.792492
SCOC	Hatchling	ground		7:00:12	8/28/2008	3.1	1.7	127.4	1.2	0.8	1.0	34.424375	-119.787664

[1]Species:
BANI =*Batrachoseps nigriventris*, black-bellied slender salamander
DIPU = *Diadophis punctatus*, ring-necked snake
ELMU = *Elgaria multicarinata,* southern alligator lizard
PSRE = *Pseudacris regilla*, northern Pacific treefrog
SCOC = *Sceloporus occidentalis*, western fence lizard
UTST = *Uta stansburiana*, common side-blotched lizard

Appendix F – Visual Encounter Survey Data

Table 2. Weather Conditions During Visual Encounter Surveys

Date	Time	Survey	Air Temp (C)	Wind Speed (mph)	Cloud Cover (%)	Precipitation	Observers[1]	Latitude	Longitude
3/27/2008	10:31:59	Start	24.5	5	10	None	SVC	34.424287	-119.805590
3/27/2008	11:05:39	Stop		7	5	None	SVC	34.423678	-119.803571
3/27/2008	12:53:59	Start	30.0	0	5	None	SVC	34.424402	-119.802770
3/27/2008	17:02:59	Stop	29.0	5	65	None	SVC	34.423762	-119.801927
3/28/2008	9:15:00	Start	18.0	3	0	None	SVC	34.424973	-119.787856
3/28/2008	11:53:00	Stop	24.5	5	0	None	SVC	34.424982	-119.787854
3/28/2008	13:10:59	Start	25.5	2	0	None	SVC	34.424414	-119.802769
3/28/2008	16:15:59	Stop	24.5	2	0	None	SVC	34.424395	-119.802541
5/15/2008	10:23:45	Start	22.0	5	25	None	SVC	34.424380	-119.787706
5/15/2008	11:41:38	Stop				None	SVC	34.424314	-119.787788
5/15/2008	13:07:48	Start	23.0	2	20	None	SVC	34.424888	-119.804809
5/15/2008	18:00:00	Stop				None	SVC	34.423695	-119.803918
5/16/2008	9:44:44	Start	21.0	2	0	None	SVC	34.423334	-119.801942
5/16/2008	10:59:37	Stop		2	0	None	SVC	34.424120	-119.787134
5/16/2008	13:09:41	Start	30.0	2	0	None	SVC	34.424120	-119.787130
5/16/2008	17:30:00	Stop		2	0	None	SVC		
5/29/2008	10:43:45	Start	23.0	4	0	None	SVC	34.424323	-119.787783
5/29/2008	11:59:39	Stop			0	None	SVC	34.427891	-119.788415
5/29/2008	13:26:14	Start	25.5	2	0	None	SVC	34.424110	-119.807146
5/29/2008	18:06:03	Stop			0	None	SVC	34.427970	-119.788119
5/30/2008	11:12:03	Start	24.5	3	0	None	SVC	34.423835	-119.797870
5/30/2008	12:50:25	Stop			0	None	SVC	34.423888	-119.806737
5/30/2008	14:14:05	Start	29.5	4	0	None	SVC	34.424140	-119.787133
5/30/2008	17:30:00	Stop			0	None	SVC		
6/12/2008	10:51:07	Start	22.5	1	Fog clearing	None	SVC	34.423900	-119.806771
6/12/2008	18:04:05	Stop			0	None	SVC	34.424911	-119.787816

Appendix F – Visual Encounter Survey Data

Table 2. Weather Conditions During Visual Encounter Surveys

Date	Time	Survey	Air Temp (C)	Wind Speed (mph)	Cloud Cover (%)	Precipitation	Observers[1]	Latitude	Longitude
6/13/2008	10:39:07	Start	23.0	3	Fog clearing	None	SVC	34.423896	-119.806756
6/13/2008	14:53:27	Stop		3	0	None	SVC	34.424936	-119.787939
7/10/2008	10:32:17	Start	28.0	3	80	None	SVC	34.424260	-119.805647
7/10/2008	12:32:14	Stop		2	30	None	SVC	34.424255	-119.805623
7/11/2008	9:46:53	Start	26.0	2	70	None	SVC	34.424272	-119.805609
7/11/2008	13:00:00	Stop		2	10	None	SVC		
7/18/2008	10:48:54	Start	26.0	3	0	None	SVC	34.424281	-119.805625
7/18/2008	13:11:07	Stop				None	SVC	34.424731	-119.802924
7/18/2008	14:40:16	Start	24.0	9	0	None	SVC, WMK	34.423328	-119.801919
7/18/2008	17:55:22	Stop				None	SVC, WMK	34.424742	-119.803088
8/28/2008	11:30:31	Start	19.0	2	100	None	SVC	34.424151	-119.787147
8/28/2008	15:01:47	Stop	23.5	3	70	None	SVC	34.424133	-119.787117

[1]Observers: SVC = Susan V. Christopher, WMK = Wendy M.F. Knight

APPENDIX G

CRITERIA SCORING SYSTEM

Gamma Background Statistics for Full Data Sets

User Selected Options	
From File	C:\ProUCL 4.00.04\Data\wtknest.wst
Full Precision	OFF
Confidence Coefficient	95%
Coverage	90%
Number of Bootstrap Operations	2000

structure

Raw Statistics	
Number of Valid Observations	17
Number of Distinct Observations	14
Minimum	70
Maximum	440
Second Largest	400
Mean	197.4
First Quartile	122.5
Median	140
Third Quartile	265
SD	107.2
Gamma Distribution Test	
k hat	4.088
Theta hat	48.27
nu hat	139
k star	3.406
Theta star	57.94
MLE of Mean	197.4
MLE of Standard Deviation	106.9
nu star	115.8
95% Percentile of Chisquare (2k)	13.79
A-D Test Statistic	0.586
5% A-D Critical Value	0.743
K-S Test Statistic	0.216
5% K-S Critical Value	0.21
Data follow Appr. Gamma Distribution at 5% Significance Level	
Background Statistics Assuming Gamma Distribution	
90% Percentile	340.7
95% Percentile	399.6
99% Percentile	526.3
95% Wilson Hilferty (WH) Approx. Gamma UPL	411.5
95% Hawkins Wixley (HW) Approx. Gamma UPL	416.5
95% Wilson Hilferty (WH) Approx. Gamma UTL with 90% Coverag	446.2
95% Hawkins Wixley (HW) Approx. Gamma UTL with 90% Covera	453.9
Nonparametic Background Statistics	
95% Chebyshev UPL	678
95% BCA Bootstrap UTL with 90% Coverage	440

95% Bootstrap (%) UTL with 90% Coverage	440

Note: UPL represents a preferred estimate of BTV

disturbance

Raw Statistics	
Number of Valid Observations	17
Number of Distinct Observations	14
Minimum	38
Maximum	240
Second Largest	200
Mean	97.29
First Quartile	52.5
Median	87
Third Quartile	125
SD	55.17
Gamma Distribution Test	
k hat	3.892
Theta hat	25
nu hat	132.3
k star	3.244
Theta star	29.99
MLE of Mean	97.29
MLE of Standard Deviation	54.02
nu star	110.3
95% Percentile of Chisquare (2k)	13.32
A-D Test Statistic	0.302
5% A-D Critical Value	0.743
K-S Test Statistic	0.117
5% K-S Critical Value	0.21
Data appear Gamma Distributed at 5% Significance Level	
Background Statistics Assuming Gamma Distribution	
90% Percentile	169.7
95% Percentile	199.7
99% Percentile	264.4
95% Wilson Hilferty (WH) Approx. Gamma UPL	205.7
95% Hawkins Wixley (HW) Approx. Gamma UPL	208.2
95% Wilson Hilferty (WH) Approx. Gamma UTL with 90% Coverag	223.4
95% Hawkins Wixley (HW) Approx. Gamma UTL with 90% Covera	227.3
Nonparametic Background Statistics	
95% Chebyshev UPL	344.7
95% BCA Bootstrap UTL with 90% Coverage	212
95% Bootstrap (%) UTL with 90% Coverage	240

Note: UPL represents a preferred estimate of BTV

Special-Status Plants and Plant Communities of the More Mesa Habitat Sensitivity Analysis

Special-Status Plants

Common Name	Scientific Name	Status (Fed/State/County/CNPS	Criteria Score
coast allocarya	*Plagiobothrys undulatus*	None/None/Locally Rare/None	1
western goldenrod	*Euthamia occidentalis*	None/None/Locally Rare/None	1
Pacific foxtail	*Alopecurs saccatus*	None/None/Locally Rare/None	1
Jolon brodiaea	*Brodiaea jolonensis*	None/None/None/None	0
Coyote thistle	*Eryngium vaseyi*	None/None/Locally Rare/None	1
Black walnut	*Juglans californica var. californica*	None/None/Locally Rare/List 4.2	1
Cliff desert dandelion	*Malacothrix saxatilis var. saxatilis*	None/None/None/List 4.2	1

*note that *Brodiaea jolonensis* was identified in 1982 study as locally uncommon, but Wiskowski (1988) and Wilken (2007) fail to identify it as locally uncommon.

Special-Status Plant Communities
(all wetland, oak woodland, coastal bluff, native grassland plant comms included)

Community Name	Status	Criteria Score
alkali heath (wetland)	G2/S2.1	2
bulrush-cattail (wetland)	G3/S2.1	1
California brome (native grassland)	G1/S3.1	2
California Encelia (coastal bluff scrub)	coastal commission ESH	1
Coast Live Oak	coastal commission ESH	1
Marsh baccharis (wetland)	G3/S2.1	1
meadow barley (native grass/wetland)	G2/S2.1	2
mixed willow (wetland)	G3/S2.1	1
purple needlegrass (native grassland)	G1/S3.1	2
seacliff buckwheat (southern dune scrub	G1/S1.1	2
spikerush (vernal pool/wetland)	SNR	3

Special-Status Wildlife of the More Mesa Habitat Sensitivity Analysis

Special-Status Bird Species

Common name	Scientific name	Federal, State, or local status [1]	AOU species code	Start Sensitive Period	End Sensitive Period	Criteria Score	Average Territory Size (Buffer Radius) (ft.)
Grasshopper sparrow	*Ammodramus savannarum*	Nesting – SSC	GRSP	March	August	2	165.6
Yellow warbler	*Dendroica petechia*	Nesting – SSC	YEWA	April	July	2	88.63
Allen's hummingbird	*Selasphorus sasin*	Nesting – SA	ALHU	February	July	1	58.55
Oak titmouse	*Baeolophus inornatus*	Nesting – SA	OATI	March	July	1	255.21
Nuttall's woodpecker	*Picoides nuttallii*	Nesting – SA	NUWO	April	July	1	1492.72
Cooper's hawk	*Accipiter cooperii*	Nesting – WL	COHA	March	July	1	2874.28

1 - The sensitive period for special-status species observed at More Mesa was determined using the California Bird Species of Special Concern (Shuford and Gardali, 2008); Birds of North America online (Poole, 2005); and CDFG's Life History Accounts and Range Maps – California Wildlife Habitat Relationships System (Zeiner, 1990). These sources, as well as California Partners in Flight (CPIF, 2009) were used to also determine the average territory size for each special-status bird species.

Special-Status Bat Species

Common Name	Scientific Name	Status	Criteria Score
Western mastiff bat	*Eumops perotis*	CSC; WBWG:H	2
Western red bat	*Lasiurus blossevillii*	CSC; WBWG:H	2
Hoary bat	*Lasiurus cinereus*	WBWG:M; CDFG Special animal	1
Yuma myotis	*Myotis yumanensis*	CDFG Special animal	1

Special-Status Invertebrate Species

None observed to date

Special-Status Reptile and Amphibian Species

None observed to date

Wetlands of the More Mesa Habitat Sensitivity Analysis

Wetland ID	Acreage	Square Feet	Criteria						Criteria Score
			3 Parameters?	Natural? *	Flora Type **	Diversity	Hydrologic Connection ***	<4000 sf	
PEW 13	0.0060	261	no	no	I	low	i	yes	1
PEW 21	0.0236	1028	no	no	I	low	i	yes	1
PEW 23	0.0174	758	no	no	I	low	i	yes	1
PEW 25	0.0116	505	no	no	I	high	i	yes	1
PEW 29	0.0011	48	no	no	I	low	i	yes	1
PEW 15	0.0086	375	no	yes	I	low	c	yes	2
PEW 16	0.0126	549	no	yes	I	high	c	yes	2
PEW 24	0.0401	1747	no	yes	I	high	i	yes	2
PEW 26	0.3656	15926	no	yes	N	high	i	no	2
PEW 7	0.0259	1128	no	yes	N	low	c	yes	2
PEW 9	0.0144	627	no	yes	N	low	i	yes	2
SSFW 15	0.1437	6260	no	yes	N	low	i	no	2
SSFW 16	0.0552	2405	no	yes	N	low	i	yes	2
SSFW 17	0.1108	4826	no	yes	N	low	i	no	2
PEW 11	0.0890	3877	yes	yes	N	high	c	yes	3
PEW 12	0.0990	4312	yes	no	I	low	i	no	3
PEW 14	0.2456	10698	yes	yes	I	low	i	no	3
PEW 2	0.0735	3202	yes	yes	N	high	c	yes	3
PEW 27	0.0219	954	yes	no	I	high	i	yes	3
PEW 28	0.0703	3062	yes	no	I	low	i	yes	3
PEW 3	0.0400	1742	yes	yes	I	high	c	yes	3
PEW 6	0.0188	819	yes	yes	I	low	c	yes	3
PEW 8	0.0445	1938	yes	yes	N	low	c	yes	3
SSFW 11	0.0574	2500	yes	yes	N	low	c	yes	3
SSFW 12	0.0693	3019	yes	yes	N	low	c	yes	3
PEW 1	0.1220	5314	yes	no	I	high	c	no	4
PEW 10	0.1020	4443	yes	yes	N	low	i	no	4
PEW 17	1.3943	60736	yes	yes	N	low	c	no	4
PEW 18	2.3554	102601	yes	yes	N	low	c	no	4
PEW 20	0.8091	35244	yes	yes	I	high	i	no	4
SSFW 10	2.3772	103551	yes	yes	N	low	c	no	4
SSFW 3	0.4153	18090	yes	yes	N	low	c	no	4
SSFW 4	0.1748	7614	yes	yes	N	low	c	no	4
SSFW 5	1.5633	68097	yes	yes	N	low	c	no	4
SSFW 6	0.2526	11003	yes	yes	N	low	c	no	4
SSFW 7	1.3431	58505	yes	yes	N	low	c	no	4
SSFW 8	0.1727	7523	yes	yes	N	low	c	no	4
SSFW 9	0.5769	25130	yes	yes	N	low	c	no	4
PEW 19	1.6307	71033	yes	yes	N	high	c	no	5
PEW 22	0.2396	10437	yes	yes	N	high	i	no	5
PEW 4	0.3747	16322	yes	yes	N	high	c	no	5
PEW 5	0.3319	14458	yes	yes	N	high	c	no	5
SSFW 1	8.8865	387096	yes	yes	N	High	c	no	5
SSFW 13	3.1024	135141	yes	yes	N	high	c	no	5
SSFW 14	1.6962	73886	yes	yes	N	high	c	no	5
SSFW 2	0.6414	27939	yes	yes	N	high	c	no	5

* yes = naturally occurring or specifically designed as wetlands; no = incidental creation due to human activity (ruts created by ORVs, excessive irrigation runoff)
** N = dominated by natives; I = dominated by introduced species
*** Hydrologic surface connection with a natural drainage feature: c = connected and i = isolated
low diversity = 1-4 species present; high = >4 species present

Distance Measurements from historic nest locations throughout Goleta Valley
Total of 42 known nest locations throughout Goleta Valley
Measurements recorded from 20 locations most associated with urban or agricultural development

					Minimum Distance:				Directly
	Use Area	Year(s)	To Disturbance (ft)	Disturbance Type	To Structure	Corridor	Notes	Adj. to	OS Acres
				(street, ag, yard)		Width		Open Space	Suit.Forag
1	VP	2003	85	yard	135	361	173 degrees orchard or riparian for 700 ft	n,> 1000&4500	
			0	(Ag) orchard					
2	SJN	2000	130	road	200	546	380 degrees @200 ft - no structure	n, >.75mile	
							160 degrees @ 300 ft - no structure		
							the remaining area is residential		
3	SJS	2003	65	yard	95	184	236 degrees @ 200 ft - no structure	n, >1 mile	
							180 degrees @ 300 ft - no structure		
							360 degrees @ 230 ft		
4	SMFW	1999	50	informal road (undeveloped road)	250	200	160 degrees @ up to 450 ft - no structure	y	>160
	SMFE (also)								
5	SMFW	1998	20	home (vacated)	20	na	67 degrees @ 200 ft	n, >500 ft E to	160
6	EME	1999	100	road	130	na	240 degrees @ 420 ft - no structures	y	>390
7	EME	2000	50	trail	125	200	235 deg @ 715 ft no structures	y	>390
8	EME	1994	130	road/yards	170	400	230 deg @ up to 650 ft - no structures	y	>390
9	SA	2009	120	road/yards	120	1060	270 deg @ 575 ft - no structures	n, >3,000ft E to	160
10	SA	1999	240	yard/brush clearance	300	645	255 deg @ up to 550 ft - no structures	n, >2,600ft E to	160
11	ESCW	2008	100	lawn (harder stadium)	250	115	195 deg @ up to 250 ft - no structures	y	>130
12	ESCW	2003							
13	ESCW	2001							
14	ESCW	1999							
15	ESCW	2007	87	road	140	100	136 deg @ >1,500 ft - no structures	y	>130
16	OMGC	2003	38	trail/lawn	400	na	360 deg @ 340 ft - no structures		
	OMGC						215 deg @ 1,200 ft - no structures	y	>225
18	IV	2003	70	road	130	na	360 deg @ 115 ft - no structures	n, 300 ft to	35
19	NP	2001	40	yard	70	na	195 deg @ up to 240 ft - no structures	y	160
20	NP	2004							
21	MYE	1994	94	yard	120	455	360 deg @ 115 ft - no structures		
							185 deg @ 550 ft - no structures	y	>160
22	MYE	1999	350	equestrian yard	2000	na	360 deg @ 2,000 ft - no structures	y	>160
							360 deg @ 360 ft - no structures		
23	WIN	1998	55	ag row	440	115	310 deg @ 750 ft - no structures	y	>250
24	WIN	2007							
25	DP	1998	500	lawn (recreational fields)	530	200	360 deg @ 550 ft - no structures	y	>450
26	DP	1998	200	lawn (recreational fields)	280	na	360 deg @ 250 ft - no structures	y	>450

Nest and Roost (Current and Historic) at More Mesa

Distance (ft) to Nearest Development

Nest and Roost Loca	**Min**	**Max**	**Average (7 points)**
N Location 5	267	933	616
N Location 3	405	733	571
N & R Location 1	1094	1781	1481
N & R Location 2	653	1134	925
MIN	**267**	**733**	**571**
MAX	**1094**	**1781**	**1481**
AVERAGE (All)	**605**	**1145**	**898**
Average (5&3)	**336**	**833**	**594**
5 & 3 Avg - ha	3.30	20.25	10.28

Distance (ft) to Nearest Trail

Nest and Roost Loca	**Min**	**Max**	**Average (7 points)**
N Location 5	1	286	164
N Location 3	36	527	219
N & R Location 1	168	854	416
N & R Location 2	352	733	496
MIN	**1**	**286**	**164**
MAX	**352**	**854**	**496**
AVERAGE	**139**	**600**	**324**
Average (5&3)	**19**	**407**	**191**
5 & 3 Avg - ha	0.01	4.82	1.07

Based on minimum measurements taken at MM for current and historic nest and roost locations

*All points measured to nearest neigboring development or trail

Gamma Background Statistics for Full Data Sets

User Selected Options

From File	C:\ProUCL 4.00.04\Data\wtknest.wst
Full Precision	OFF
Confidence Coefficient	95%
Coverage	90%
Number of Bootstrap Operations	2000

structure

Raw Statistics

Number of Valid Observations	17
Number of Distinct Observations	14
Minimum	70
Maximum	440
Second Largest	400
Mean	197.4
First Quartile	122.5
Median	140
Third Quartile	265
SD	107.2

Gamma Distribution Test

k hat	4.088
Theta hat	48.27
nu hat	139
k star	3.406
Theta star	57.94
MLE of Mean	197.4
MLE of Standard Deviation	106.9
nu star	115.8
95% Percentile of Chisquare (2k)	13.79
A-D Test Statistic	0.586
5% A-D Critical Value	0.743
K-S Test Statistic	0.216
5% K-S Critical Value	0.21

Data follow Appr. Gamma Distribution at 5% Significance Level

Background Statistics Assuming Gamma Distribution

90% Percentile	340.7
95% Percentile	399.6
99% Percentile	526.3
95% Wilson Hilferty (WH) Approx. Gamma UPL	411.5
95% Hawkins Wixley (HW) Approx. Gamma UPL	416.5
95% Wilson Hilferty (WH) Approx. Gamma UTL with 90% Coverage	446.2
95% Hawkins Wixley (HW) Approx. Gamma UTL with 90% Coverage	453.9

Nonparametic Background Statistics

95% Chebyshev UPL	678
95% BCA Bootstrap UTL with 90% Coverage	440
95% Bootstrap (%) UTL with 90% Coverage	440

Note: UPL represents a preferred estimate of BTV

disturbance

Raw Statistics

Number of Valid Observations	17
Number of Distinct Observations	14
Minimum	4
Maximum	240
Second Largest	200
Mean	95.18
First Quartile	52.5
Median	87
Third Quartile	125
SD	58.12

Gamma Distribution Test

k hat	2.173
Theta hat	43.8
nu hat	73.89
k star	1.829
Theta star	52.04
MLE of Mean	95.18
MLE of Standard Deviation	70.38
nu star	62.18
95% Percentile of Chisquare (2k)	8.927
A-D Test Statistic	0.465
5% A-D Critical Value	0.749
K-S Test Statistic	0.15
5% K-S Critical Value	0.211

Data appear Gamma Distributed at 5% Significance Level

Background Statistics Assuming Gamma Distribution

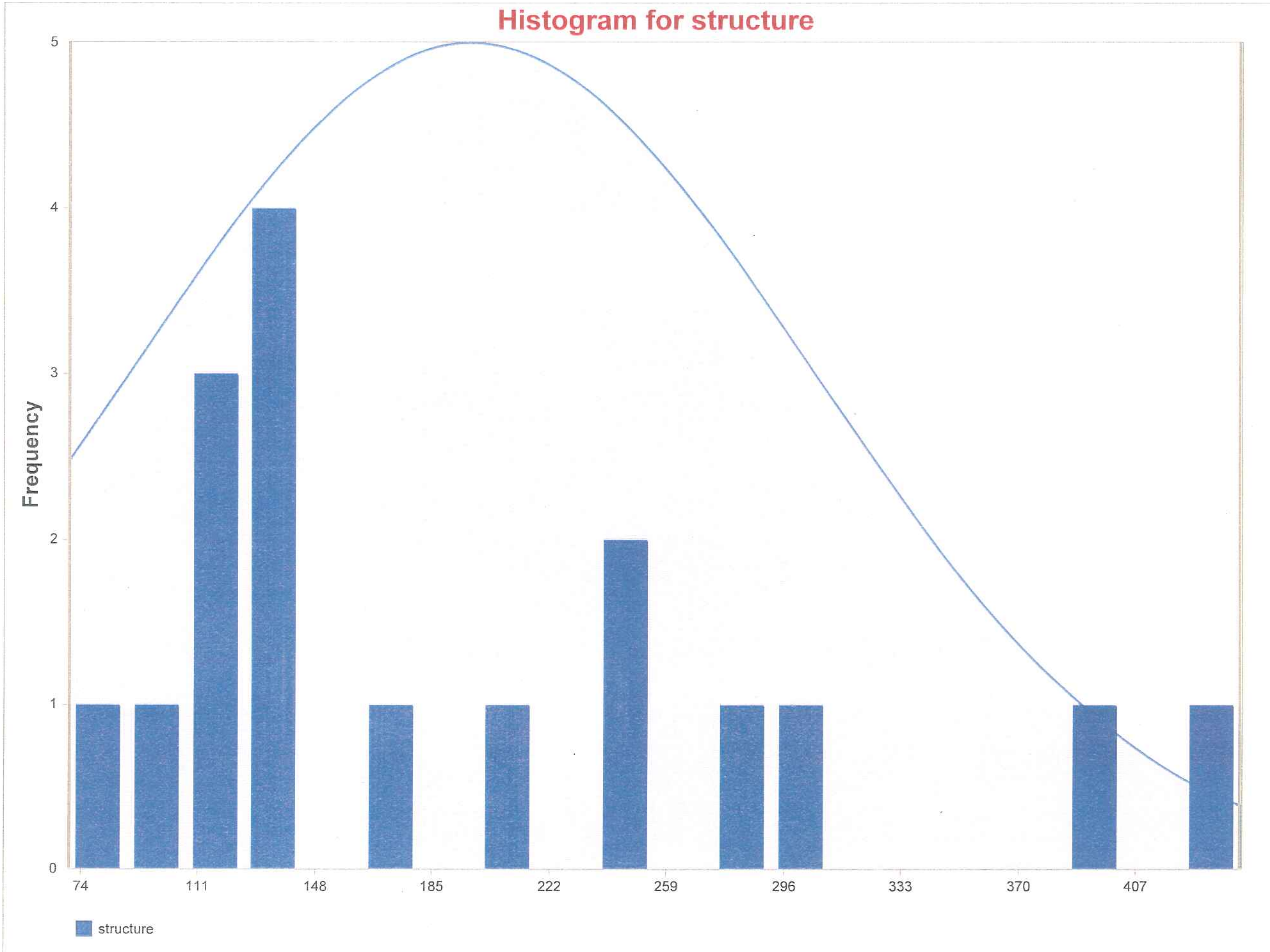
90% Percentile	189.1
95% Percentile	232.3
99% Percentile	328.7
95% Wilson Hilferty (WH) Approx. Gamma UPL	240.8
95% Hawkins Wixley (HW) Approx. Gamma UPL	257.3
95% Wilson Hilferty (WH) Approx. Gamma UTL with 90% Coverage	266.4
95% Hawkins Wixley (HW) Approx. Gamma UTL with 90% Coverage	288.2

Nonparametic Background Statistics

95% Chebyshev UPL	355.9
95% BCA Bootstrap UTL with 90% Coverage	212

95% Bootstrap (%) UTL with 90% Coverage	240

Note: UPL represents a preferred estimate of BTV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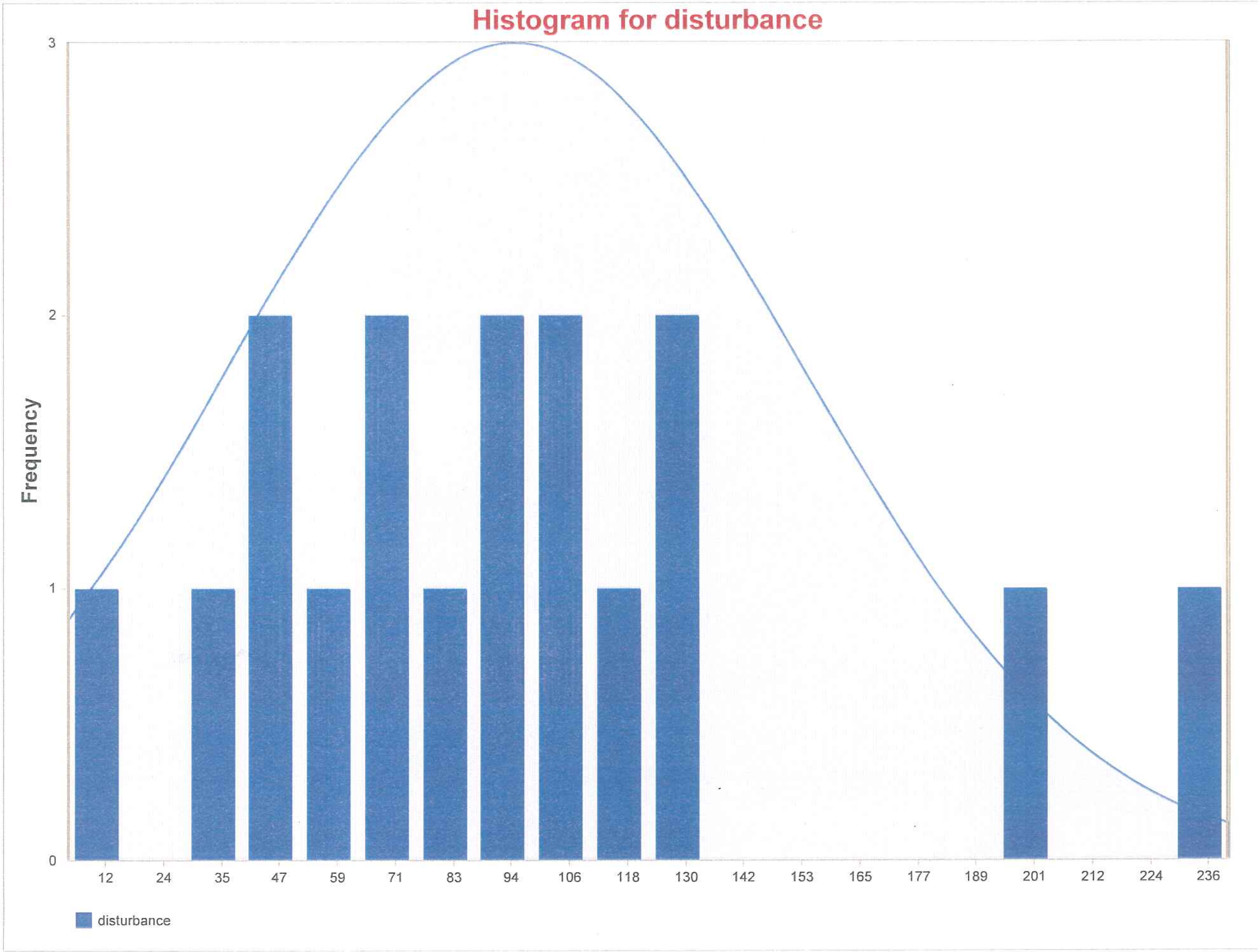
185
222
259
296
333
370
407
structure


Histogram for disturbance
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0
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24
35
47
59
71
83
94
106
118
130
142
153
165
177
189
201
212
224
236
disturbance

Organization	Abbreviation
American Bird Conservancy – U. S. WatchList of Birds of Conserva	ABC_WLBCC
American Fisheries Society - Endangered	AFS_EN
American Fisheries Society - Threatened	AFS_TH
American Fisheries Society - Vulnerable	AFS_VU
Bureau of Land Management - Sensitive	BLM_S
Calif Dept of Forestry & Fire Protection - Sensitive	CDF_S
Calif Dept of Fish & Game - Fully Protected	DFG_FP
Calif Dept of Fish & Game - Species of Special Concern	DFG_SSC
Calif Dept of Fish & Game - Watch List	DFG_WL
IUCN – Conservation Dependent	IUCN_CD
IUCN - Critically Endangered	IUCN_CR
IUCN - Data Deficient	IUCN_DD
IUCN - Endangered	IUCN_EN
IUCN - Least Concern	IUCN_LC
IUCN - Near Threatened	IUCN_NT
IUCN - Vulnerable	IUCN_VU
Marine Mammal Commission - Species of Special Concern	MMC_SSC
National Marine Fisheries Service - Species of Concern	NMFS_SC
U. S. Forest Service - Sensitive	USFS_S
U. S. Fish & Wildlife Service Birds of Conservation Concern	USFWS_BCC
Western Bat Working Group - High Priority	WBWG_H
Western Bat Working Group - Low-Medium Priority	WBWG_LM
Western Bat Working Group - Medium Priority	WBWG_M
Western Bat Working Group - Medium-High Priority	WBWG_MH
Xerces Society - Critically Imperiled	XERCES_CI
Xerces Society - Data Deficient	XERCES_DD
Xerces Society - Imperiled	XERCES_IM
Xerces Society - Vulnerable	XERCES_VU