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SEMONSEN

BIOLOGICAL RESOURCES ASSESSMENT

SANTA BARBARA COUNTY PROPERTY
(APN 65-320-04)

MORE MESA

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Submitted:	September 30, 1992

TABLE OF CONTENTS

INTRODUCTION

The subject report describes the biological resource characteristics of a 35-acre parcel (APN 65-320-04), formerly known as the Austin/Andrews property, on More Mesa, Santa Barbara County, California. The parcel was recently purchased by the County of Santa Barbara. This investigation was undertaken in support of a resource management plan prepared by Storrer and Semonsen Environmental Services of Santa Barbara, California, under contract to The Land Trust for Santa Barbara County. The faunal component of this report was done by John Storrer. Wayne Ferren, a contract consultant, authored sections pertinent to botanical resources. Management recommendations were formulated jointly by the two authors. The biological assessment complements a concurrent study of the site's cultural resources (Wilcoxon 1992).

The study area encompasses approximately 34.5 acres of coastal property in the northwest portion of the physiographic area known as More Mesa (Figures 1 and 2). Surrounding lands consist of residential and undeveloped private property. A brief evaluation of resources within these peripheral areas is included in this report.

The scope of the research was limited to vascular plants, terrestrial vertebrates, and their habitats. The primary objectives of the investigation were:

- to compile a resource inventory based on field reconnaissance and previous studies of the project area;
- identify resource sensitivities and current sources of degradation that might influence future management strategies for the area;
- and develop management recommendations to ensure the preservation and improvement of existing habitat values.

INVESTIGATIVE PROCEDURE

Baseline data were assembled through literature review, field survey, and interviews with area biologists. Site-specific resource sensitivities were then identified from this information and management recommendations were developed accordingly.

A comprehensive, systematic study of the biology of the greater More Mesa area (encompassing some 300 acres, including the subject parcel) was completed by Ferren and Smith in 1982. In addition to being geographically broader in scope than the subject investigation, the earlier evaluation was longer in duration. As a result, the 1982 data are more comprehensive in that they reflect seasonal variation in species density and composition, a factor that is particularly important for wildlife. For this

reason, the information contained in Ferren and Smith's 1982 report was used as the basis for the subsequent evaluation. By contrast, this more recent study was relatively constrained in both scope and duration. The subject report, does however, contain more detail with respect to the 34.5-acre study site. In addition, it provides a more current description of the nature and condition of onsite resources.

A review of museum and herbarium files and collections were useful in supplementing the written information for the More Mesa property. Institutions such as the Santa Barbara Museum of Natural History (SBMNH), UC Santa Barbara Museum of Vertebrate Zoology, UC Santa Barbara Herbarium, and Santa Barbara Botanic Garden curate unpublished field notes, specimen records, and species accounts. Interviews with local biologists familiar with the region's flora and fauna were also helpful in compiling a current description of site characteristics.

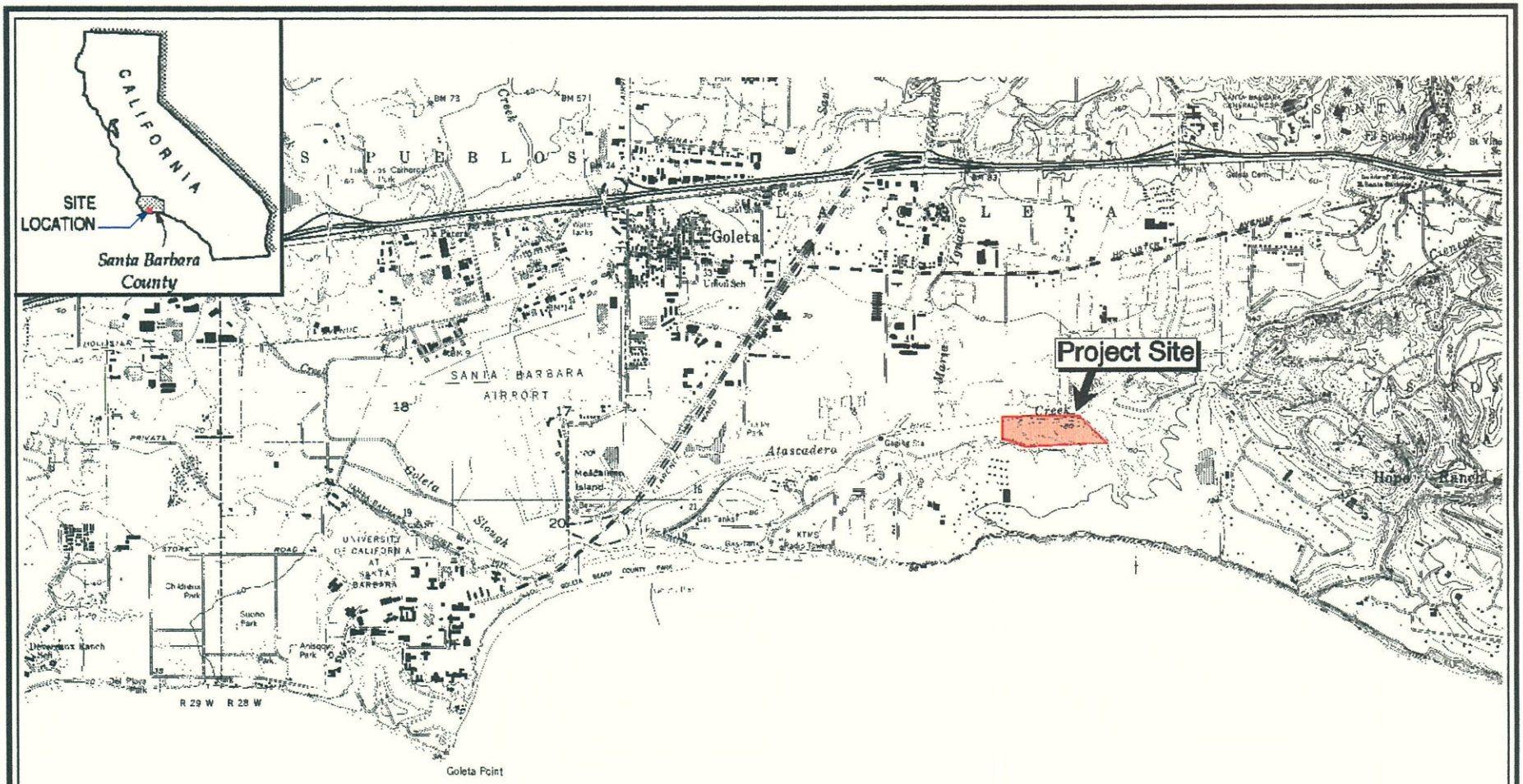
A field reconnaissance was conducted to gather site-specific information on habitat quality, to evaluate effects of current land use, and to update and refine the vegetation map presented in the 1982 Herbarium report. In addition to a general habitat assessment, specific areas which had been described in detail in 1982 were re-visited to evaluate habitat degradation or improvement given existing land use practices. The survey was confined to a relatively narrow interval (late August and early September), therefore temporal patterns of habitat use by wildlife and variations in plant community composition could not be conclusively ascertained.

ENVIRONMENTAL SETTING

Regional Setting

More Mesa is situated adjacent to the Goleta Valley in South Coastal Santa Barbara County, approximately 1.5 miles southeast of downtown Goleta (Figure 1). The More Mesa Planning Area, as defined by the County's Draft Community Plan (SBCo 1992), is approximately 300 acres in size. The 34.5-acre County parcel is included within this larger physiographic area (Figure 2).

The More Mesa property is bounded by the Pacific Ocean to the south, Atascadero Creek to the north, the residential district of Hope Ranch to the east, and moderate density residential and commercial development along Orchid and Shoreline Drives to the west. The subject parcel is located in the northwestern portion of More Mesa (Figure 2). The parcel is slightly over one-half mile in length (east-west) and is about 0.17 miles in width (north-south).



PROJECT SITE LOCATION--MORE MESA
SANTA BARBARA COUNTY, CALIFORNIA

SOURCE: USGS 7.5' GOLETA QUADRANGLE

FIGURE 1

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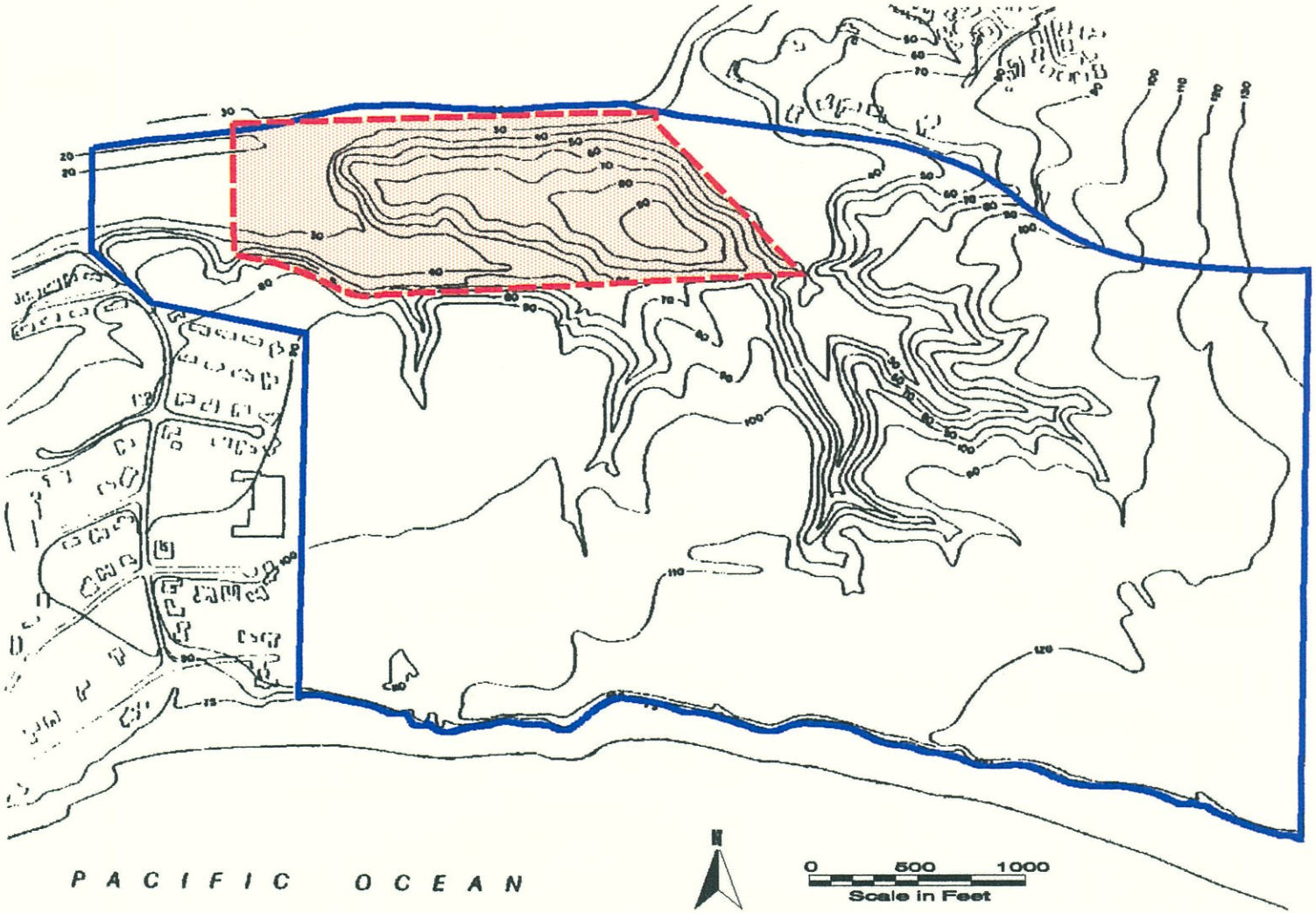

PROJECT SITE BOUNDARIES--COUNTY PARCEL, MORE MESA, SANTA BARBARA COUNTY, CALIFORNIA

FIGURE 2

Project Site (County-Owned Parcel)

Area of Study By UCSB Herbarium (Ferren & Smith 1982)

SOURCE: Ferren & Smith 1982

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Site Description

Atascadero Creek forms the northern perimeter of the County property (Figure 3). A 40-foot wide easement for a natural gas pipeline parallels the southern bank of the creek channel. A second gas pipeline easement lies within an abandoned railroad right-of-way (ROW) that roughly corresponds to the site's southern boundary. The western property line runs perpendicular to the creek and gas pipeline easement. The eastern property boundary angles southeast from the site's northeast corner and terminates within the southern pipeline easement. The central portion of the project site is characterized by a wide, east-west trending hill that reaches a maximum elevation of 87 feet above sea level (approximately 60 feet above the adjacent creekbed and its tributaries). The hill slopes gently northward toward Atascadero Creek, and southward in the direction of several smaller drainages. This feature was historically connected to the west portion of the mesa, prior to excavation for the railroad bed. The soils comprising the hill are described as fine, sandy loam (Ferren and Smith 1982).

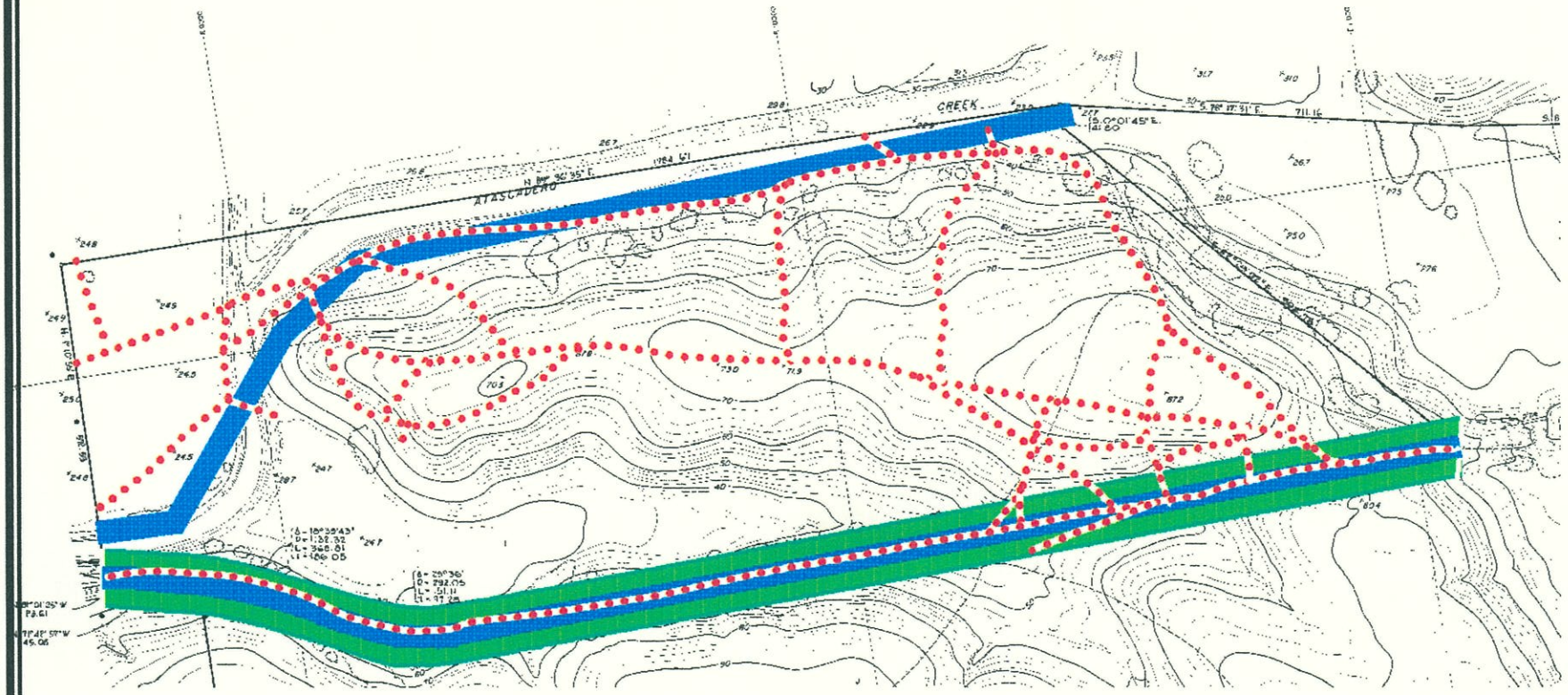
Prior and Current Land Use

A network of dirt roads and pathways connects various portions of the subject parcel with the surrounding properties (Figure 3). The most predominant of these are the two maintained gas line easements that follow the northern and southern property boundaries. A well-established trail trends southeastward across the Central Hill portion of the site. There are a number of secondary trails used by vehicles, pedestrians, and equestrians.

Aside from the pipelines, current land use is primarily recreational. Among the main pursuits are walking, birdwatching, horseback riding, bicycling, and off-road vehicle use. Historically, the property was used for agriculture and railroad transportation. There is also significant evidence of prehistoric occupation by indigenous peoples (Wilcoxon 1992).

Habitat Overview

The More Mesa property supports a variety of wetland and upland habitat types. In overview, the mesa is comprised of a broad expanse of annual grassland broken by several northward trending drainages leading to Atascadero Creek. There are patches of coastal scrub and stands of live oak woodlands on the slopes of the mesa. Live oak and riparian woodlands are associated with Atascadero Creek and its smaller tributaries. Large depressions or basins associated with the historic creek channel support alkali soils and halophytic plant species, evidence that this area was once a more integral part of an estuarine or coastal salt marsh ecosystem.



N

0 500

Scale in Feet

PHYSICAL FEATURES OF THE PROJECT SITE

FIGURE 3

1887 Southern Pacific Rail Road Easement

SCGC Gas Line Easements

Existing Unimproved Trails & Roads

SOURCE: Penfield & Smith Engineers

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The undeveloped character of the mesa imparts substantial wildlife values. The riparian corridors formed by the Atascadero Creek drainage system provide critical links for wildlife dispersal to and from outlying areas. The most important of these is the Goleta Slough and its environs, located roughly two miles southwest of More Mesa (Figure 1). The importance of More Mesa to regionally rare and declining bird species is emphasized in the 1982 report (Lehman 1982).

In terms of their utility to wildlife, there are six inter-related habitats represented within the 34.5 acre County parcel: grasslands; live oak woodland; riparian woodland; palustrine wetland; coastal scrub; and non-native (eucalyptus) woodland. More detailed distinctions are typically made for purposes of classifying vegetation types. Subsequent descriptions of plant and wildlife habitats reflect this difference in approach.

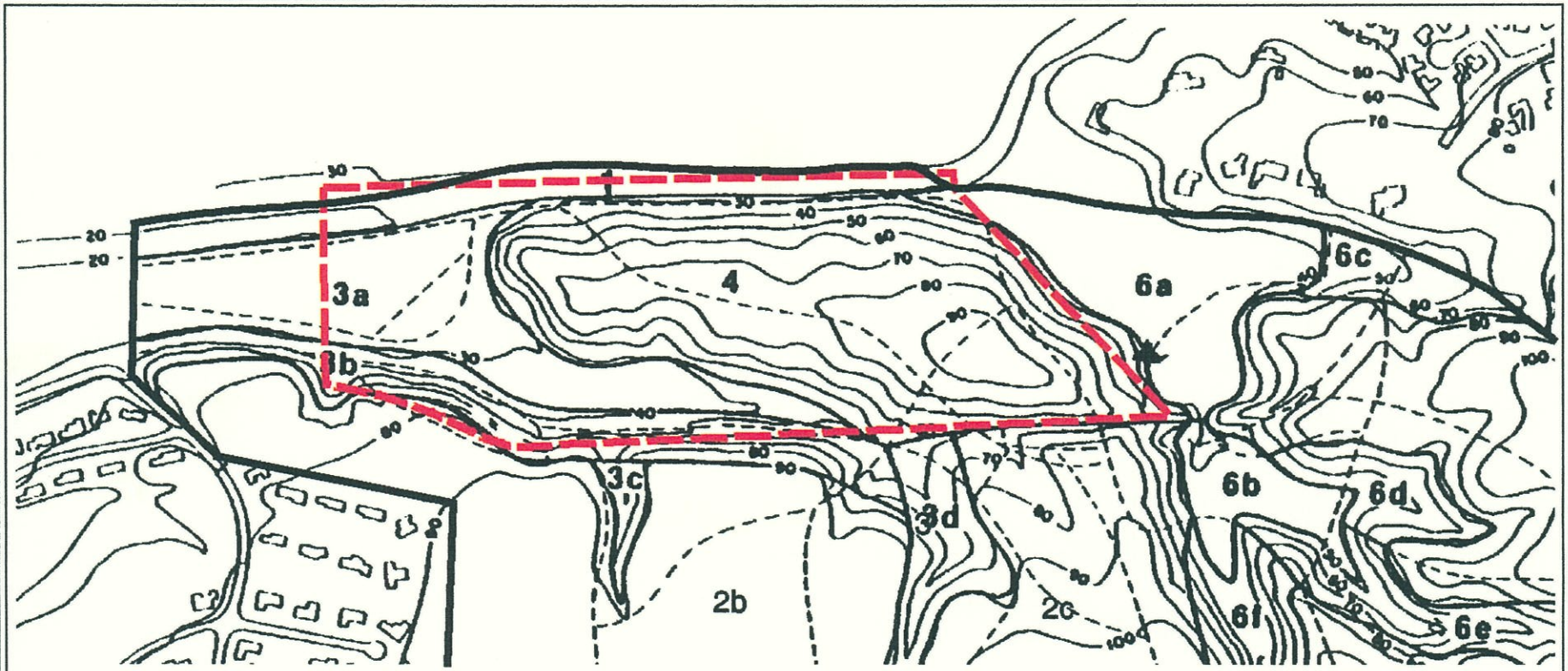
Physiographic Areas

The study site includes all or parts of three physiographic areas as defined by Ferren and Smith (1982). Divisions of this nature are useful in discussing the distribution and relatedness of various habitat types. These divisions, as they relate to the County parcel, are graphically depicted in Figure 4. They are: Atascadero Creek (Area 1); the West Drainage System (Area 3); and the Central Hill (Area 4). The West Drainage System is further divided into the Central Basin (Area 3a) and Central Basin Slope (Area 3b). The East Drainage System (Area 6) that lies immediately east of the County property constitutes a fourth physiographic area of integral importance to the project site.

BOTANICAL RESOURCES

Vegetation Classification

Upland (dryland) vegetation is classified according to the California Department of Fish and Game (CDFG) scheme (i.e., Holland 1986) and wetland vegetation is defined and classified according to the US Fish and Wildlife Service (USFWS) scheme (i.e., Cowardin et al. 1979). This report uses Holland (1986) because it is an updated version of the classification scheme by Cheatham and Haller (1975), which was used in the previous study of More Mesa (Ferren and Smith 1982). Definitions and techniques are from Cowardin et al. (1979), and are modified somewhat for California, because (1) Cowardin et al. (1979) was applied to wetlands during the 1981-82 study, (2) the subject parcel is within the California Coastal Zone, (3) both the California Coastal Commission and the California Fish and Game Commission have formally accepted Cowardin et al. (1979) for application in matters within their jurisdiction, and (4) the County of Santa



Key To Physiographic Areas

1. Atascadero Creek
3. West Drainage System
   a. Central Basin
   b. Central Basin Slope
4. Central Hill
6. East Drainage Section
   a. North Basin
   b. South Basin
   c. North Ravine
   d. North Central Ravine

N

0 500 1000
Scale in Feet

PHYSIOGRAPHIC AREAS AS DEFINED BY UCSB HERBARIUM STUDY

FIGURE 4

Project Site (County-Owned Parcel)

Area of Study By UCSB Herbarium (Ferren & Smith 1982)

SOURCE: Ferren & Smith 1982

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Barbara Department of Resource Management is considering adopting Cowardin et al. for definition and classification of wetlands.

Classification of Uplands

Major Category: Scrubs and Chaparrals
Subcategory: Coastal Scrubs
Element: "Venturan Coastal Sage Scrub"
Habitats: slopes, banks, outcrops, mesas, arroyos, alluvium
Characteristic Species: *Artemisia californica, Baccharis pilularis, Rhamnus californicus, Toxicodendron diversilobum*

"Venturan Coastal Sage Scrub" occurs in several forms on the County parcel, but is limited to small patches wherever it is located. On the north-facing slope east of Shoreline Drive, this element is generally dominated by poison oak (*Toxicodendron diversilobum)* and coyote brush (*Baccharis pilularis*), and perhaps could be classified as the element "Poison Oak Chaparral" at some sites. Most of the examples occur on the adjacent parcel to the south. Open areas along the old channel of Atascadero Creek support an upland riparian scrub vegetation that includes California blackberry (*Rubus ursinus*). Other areas dominated by coyote brush are apparently successional associations that colonized disturbed grassland areas on mesa slopes.

Major Category: Herbaceous Communities
Subcategory: Valley and Foothill Grasslands
Element: "Non-native Grassland"
Habitats: mesa tops and slopes
Characteristic Species: *Avena fatua, Bromus diandrus, Lolium multiflorum*

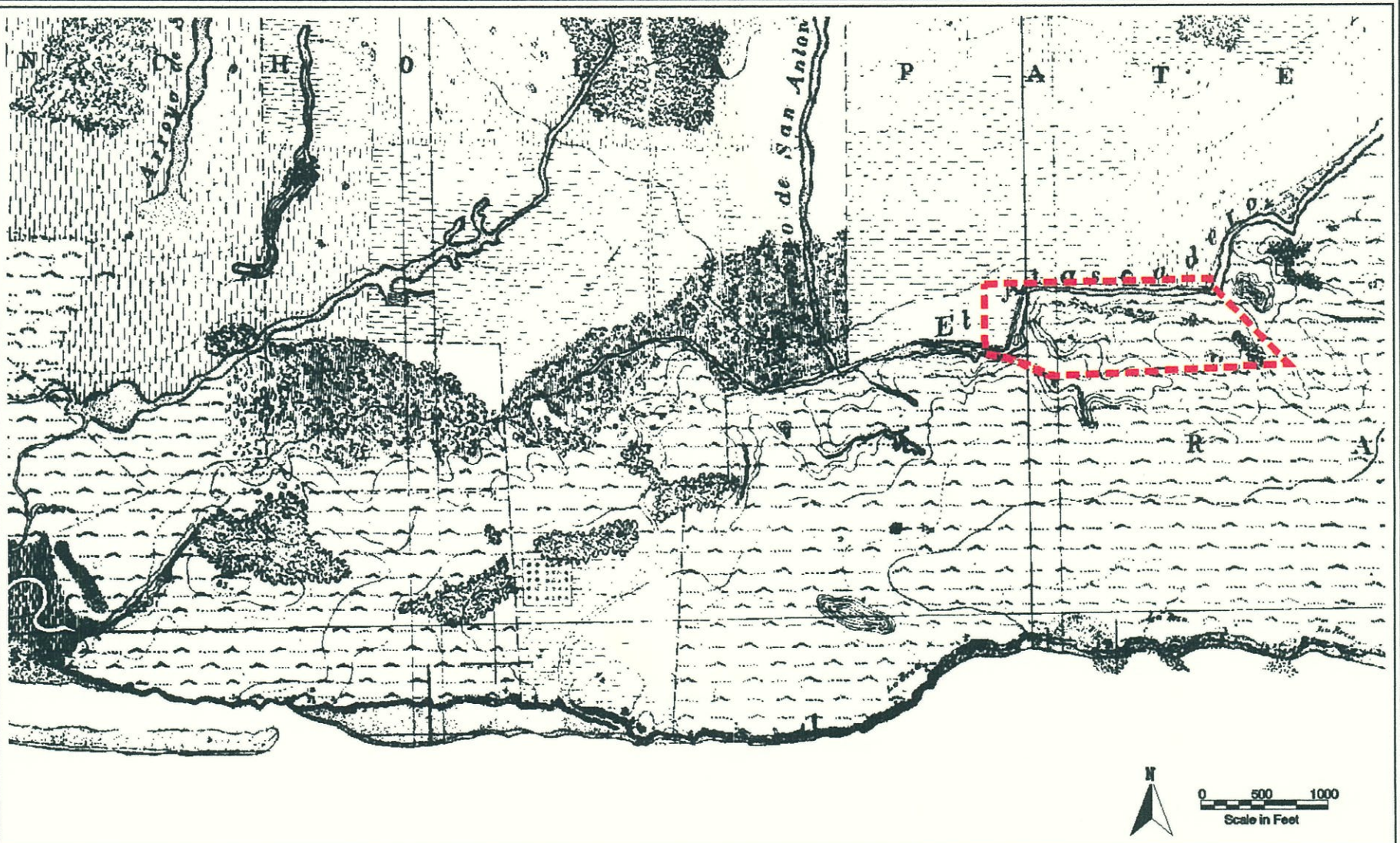
The grasslands at More Mesa are complex and include many different dominance types. Hannan (1982) reported ten different grassland dominance types for the entire mesa. These were collectively referred to "Cismontane Introduced Grasses" as per Cheatham and Haller (1975). Nine of these types were identified on the County parcel. The grassland types dominated or characterized by native grasses ("Cismontane Native Grassland") include: California brome - California barley (*Bromus carinatus - Hordeum californicum*); alkali wildrye (*Elymus triticoides*); and salt grass (*Distichlis spicata*). Although the latter two types are often in wetlands, they also occur in coastal upland grasslands in the Santa Barbara region, such as at More Mesa. The following types that are dominated or characterized by introduced grasses: wild oat (*Avena fatua)*; wild oat -

ripgut grass (*Bromus diandrus*); ripgut grass; Harding grass (*Phalaris aquatica*); sweet fennel (*Foeniculum vulgare*), and coyote brush (i.e., a native shrub and introduced grass mixture that is largely grasses). "Valley Needlegrass Grassland" (Holland 1986), dominated by purple needlegrass (*Stipa pulchra*), may have occurred at the site historically, but is not known from More Mesa except as small patches scattered along the immediate coast. "Valley Wildrye Grassland" (Holland 1986), which is dominated by alkali wildrye, is generally restricted to wetland grasslands and grasslands of greater extent than those dominated by alkali wildrye in uplands at More Mesa. "Wildflower Field" is a term given by Holland (1986) for "an amorphous grab bag of herb-dominated types noted for conspicuous annual wildflower displays." Although nothing that fits this description occurs at More Mesa, some of the wildflower species that characterize this association have been found (e.g., lupines, fiddlenecks, blue-eyed grass, owl's clover, lotus, tarweed, telegraph weed, etc.). These species generally occur in association with one of the various dominance types, particularly sandy soils near the ocean bluffs.

Another type of herbaceous association not recognized by Holland is the "Ruderal Community" of largely weedy species that occur in disturbed areas such as path and road margins, pipeline corridors, abandoned agricultural areas, etc. The largest such site is the alluvium along Atascadero Creek that was converted to agricultural land before the 1870s, as illustrated on the US Coast Survey map of the area for that period (Figure 5). This land may have been dominated by wetland vegetation such as riparian woodland or scrubland before it was disturbed. Large patches of weeds now include Russian thistle (*Carduus pycnocephalus*), Russian knapweed (*Centaurea repens*), poison hemlock (*Conium maculatum*), milk thistle (*Silybum marianum*), and wild lettuce (*Lactuca serriola*). Native shrubs that have colonized portions of the area, and that suggest what type of vegetation might be successfully restored, include coyote brush, poison oak, and mugwort (*Artemisia douglasiana*).

Major Categories: Woodland and Forest Communities
Subcategories: Cismontane Woodlands; Broadleaved Upland Forests
Elements: "Coast Live Oak Woodland"; "Coast Live Oak Forest"
Habitats: north and east-facing slopes
Characteristic Species: *Quercus agrifolia*

Native upland vegetation characterized by trees is limited to oak-dominated forms intermediate between open woodlands and closed-canopy forests. Although only one tree, coast live oak (*Quercus agrifolia*) dominates the canopy, three additional small trees/shrubs are occasional at More Mesa: toyon (*Heteromeles arbutifolia*), coffeeberry (*Rhamnus californicus*), and elderberry (*Sambucus mexicana*). Hannan (1982) used "Southern Coastal Oak Woodland" for this association. Characteristic shrubs include poison oak in addition to the above mentioned species. The eastern extension of Shoreline Drive cuts through the most well-developed oak forest-like vegetation on the



Project Site (County-Owned Parcel)

Oak | Grass | Cultivation | Coastal Pond

HISTORIC (1870) U.S. COAST SURVEY MAP

SOURCE: Survey By W.E. Greenwell, U.S. Coast Survey

FIGURE 5

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Mesa. The northern portion of this wooded slope is located in part on the County parcel. The wood fern, (*Dryopteris arguta*), also occurs at this site. Due to the disturbance caused by the road through this area, there are many weeds and native species present that are more characteristic of open habitats rather than forests.

At the lower slope along the old channel of Atascadero Creek, the oak-dominated upland vegetation is transitional to and is replaced by wetland riparian vegetation dominated by willows and other native species. Along the eastern margin of the County parcel, the canopy of oaks is open is some areas and supports grassland vegetation that includes native grasses such as California brome and alkali rye in addition to various introduced species. In the northwest portion of the site, the canopy is more forest-like and the understory more shaded than the woodland-like portions. This oak woodland/forest has served as a nesting site for black-shouldered kites (Lehman 1982a).

Major Category: Woodland
Subcategory: Broadleaved Evergreen
Element: "Planted Exotic Grove"
Habitat: slopes
Characteristic Species: *Eucalyptus* spp.

A "Planted Exotic Grove" of eucalyptus (*Eucalyptus globulus* and *E. camaldulensis*) occurs on the northern side of the Central Hill along Atascadero Creek. This old grove may have been used to replace the Coast Live Oak Woodland/Forest that once extended the entire length of the Central Hill according to the 1870 US Coast Survey Map for the area (Figure 5).

Classification of Wetlands

System: Riverine (Atascadero Creek)
Subsystems: Intermittent to Lower Perennial
Class A: "Riverine Aquatic Bed"
Subclass: Rooted Vascular
Habitat: Flooded Stream Channel
Dominance Type: *Zannichellia palustris*

Classes B & C: "Riverine Unconsolidated Bottom"; " Riverine Unconsolidated Shore"
Subclass: Sand
Habitat: Exposed Streambed and Shore
Dominance Type: Mixed Mosaic of Native and Introduced Species and Open Substrate

Class D: "Riverine Vegetated Wetland"
Subclass: Persistent to Nonpersistent
Habitat: Streambed
Dominance Type: *Scirpus californicus*

The Riverine System of wetlands and deepwater habitats is confined to channels with at least periodic flows that are strong enough to be the dominant physical aspect defining vegetation type. Atascadero Creek provides this type of environment. Depending on the amount of sediment in the channel, the flows are either intermittent on the surface (with deeper sediments), or they are perennial and can support submerged, rooted-aquatic species (e.g., horned pondweed, (*Zannichellia palustris*)) which occurs in "Riverine Aquatic Bed Wetland". Ferren observed small patches of this wetland in 1988, but due to sedimentation in the channel as a result of erosion in 1991 and 1992, there were no perennial flows in this portion of Atascadero Creek during late summer 1992. Disturbed streambed and shore habitats that are (1) dominated by annual or perennial species or seedlings, many of which are naturalized, (2) have a significant amount of open substrate, and (3) are temporarily or seasonally flooded support either "Riverine Unconsolidated Bottom" or "Unconsolidated Shore Wetlands". Portions of the channel that are dominated by native, generally perennial species (e.g., California bulrush, *Scirpus californicus)* that are affected by stream flows but form larger, more persistent stands than other sites are identified as "Riverine Vegetated Wetlands". Because of the seasonally changing relationship among these wetland types as a result of the disturbance from stream flows, wetland types were not mapped for this study.

System: Palustrine (there are no subsystems)
Class A: "Palustrine Emergent Wetland"
Subclass: Persistent
Habitat I: Abandoned Stream Channel
Dominance Types: *Scirpus californicus; Sparganium eurycarpum*

Habitat II: Arroyo Bottomlands
Dominance Types: *Euthamia occidentalis; Elymus triticoides*

The original channel of Atascadero Creek occurs north of and below the oak-dominated slope east of Shoreline Drive. The "new" channel for Atascadero Creek is a flood control structure created as part of the channelization of the creek to accommodate greater capacity during flood flows. The abandoned smaller channel apparently no longer contains flows but does fill with water from precipitation. This "Palustrine Emergent Wetland" supports various native and naturalized hydrophytes, including

stands of the regionally uncommon bur-reed (*Sparganium eurycarpum*). The banks of this channel support riparian vegetation, particularly "Palustrine Forested Wetland" that is dominated by willows (see discussion below).

Another type of Palustrine Emergent Wetland occurs in bottomlands or basins of drainages that once did or still do flow into Atascadero Creek. These "meadow-like" habitats apparently were once on the margin of the estuary Goleta Slough before the sedimentation from Atascadero and Maria Ygnacio creeks blocked the mouths of drainages. Such habitat areas occur east and west of the Central Hill. The eastern basin (area 6a and 6b or the "Eastern Drainage System: North Basin and South Basin") (Figure 4) still supports various salt marsh species and is illustrated as a coastal pond on the US Coast Survey map date 1870 (Figure 5). The western basin (area 3a or the "Western Drainage System: Central Basin") includes some low areas dominated by herbaceous hydrophytes such as western goldenrod (*Euthamia occidentalis*) and areas dominated by trees such as willows. Areas of higher elevation in the western portions of the basin, which are alluvial deposits from Atascadero Creek, were historically used for agriculture and are now ruderal upland habitats dominated by naturalized weedy species (Figure 6). As a result of several years of drought, various naturalized species have colonized this Palustrine Emergent Wetland.

Class B: "Palustrine Scrub/Shrub Wetland"
Subclasses: Broadleaved Deciduous and Evergreen
Habitats: Stream Banks, Bottomlands, Channels
Dominance Types: Mixed: *Baccharis pilularis, Rubus ursinus, Salix lasiolepis, Toxicodendron diversilobum*

"Palustrine Scrub/Shrub Wetland" is not well-developed at More Mesa, but patches of native shrubs or scrub vegetation do occur in wetland conditions and can be identified as this type of wetland. Margins of Atascadero Creek that are dominated by scrub rather than tree willows, particularly arroyo willow (*Salix lasiolepis)*, are more accurately classified as Palustrine Scrub/Shrub Wetland than Palustrine Forested Wetland. Portions of the arroyo bottomland habitat, portions of drainages that flow into the arroyo bottomland, and margins of the old channel of Atascadero Creek also may be considered this type of wetland. Characteristic shrubs of this wetland type often are the dominant understory of Palustrine Forested Wetland and Southern Coastal Live Oak Woodland.

Class C: "Palustrine Forested Wetland"
Subclass: Broadleaved Deciduous
Habitat I: Stream Banks
Dominance Type: *Salix lasiolepis*

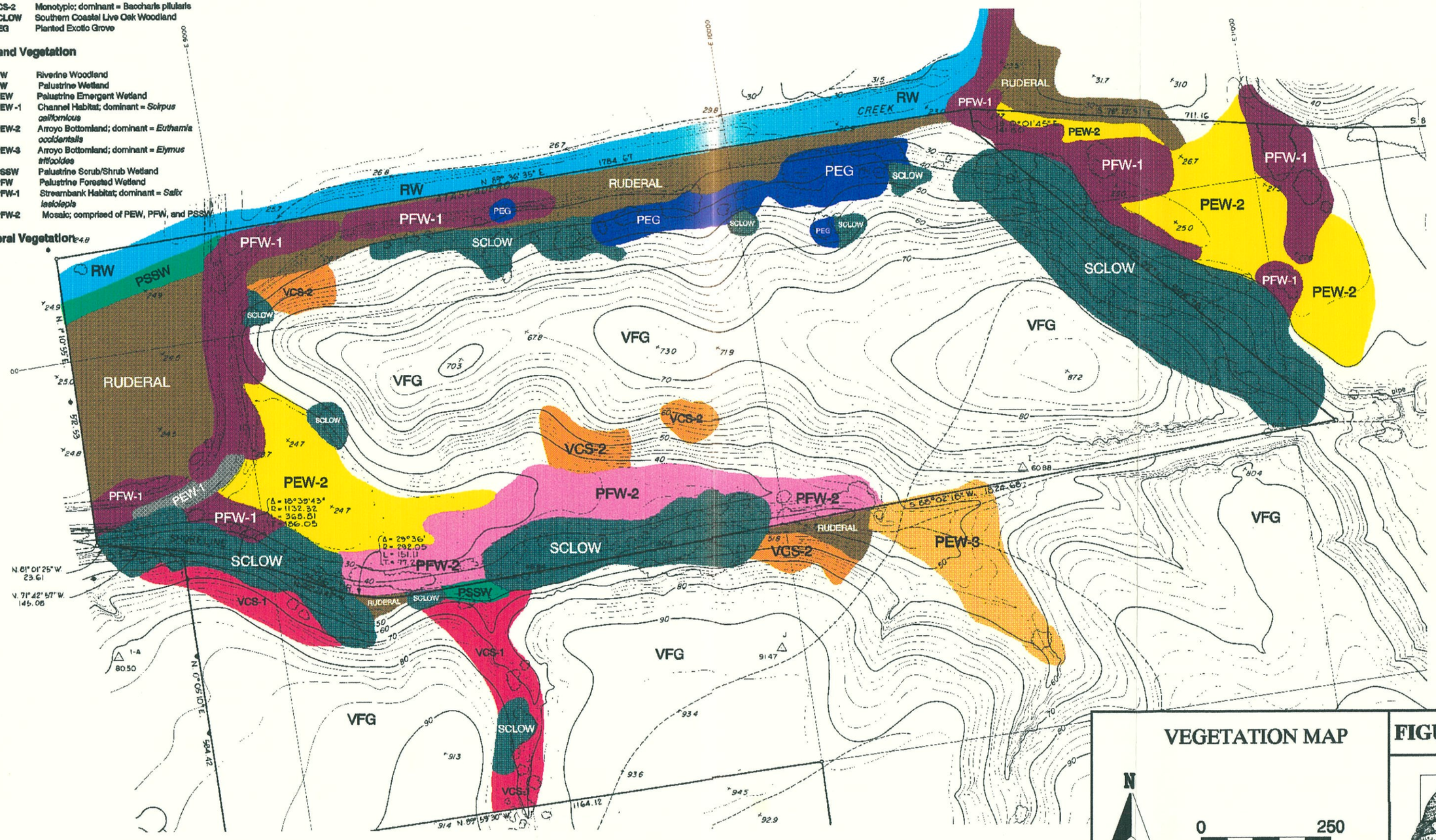
Upland Vegetation

VFG	Valley Foothill Grassland
VCS	Venturan Coastal Scrub
VCS-1	Mosaic; dominants = Baccharis pilularis, Artemesia californica, and Toxicodendron diversilobum
VCS-2	Monotypic; dominant = Baccharis pilularis
SCLOW	Southern Coastal Live Oak Woodland
PEG	Planted Exotic Grove

Wetland Vegetation

RW	Riverine Woodland
PW	Palustrine Wetland
PEW	Palustrine Emergent Wetland
PEW-1	Channel Habitat; dominant = *Scirpus californicus*
PEW-2	Arroyo Bottomland; dominant = *Euthamia occidentalis*
PEW-3	Arroyo Bottomland; dominant = *Elymus triticoides*
PSSW	Palustrine Scrub/Shrub Wetland
PFW	Palustrine Forested Wetland
PFW-1	Streambank Habitat; dominant = *Salix lasiolepis*
PFW-2	Mosaic; comprised of PEW, PFW, and PSSW

Ruderal Vegetation



VEGETATION MAP

N

0 250

Scale in Feet

FIGURE 6

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Habitat II: Arroyo Bottomland, drainages
Dominance Types: mixed: *Populus trichocarpa; Quercus agrifolia; Salix lasiolepis*

"Palustrine Forested Wetland" (i.e., the wetland portion of riparian woodland and forest) is well represented at various sites on the County parcel. The dominant species is Arroyo Willow, which occurs along the old and new channels of Atascadero Creek, in bottomland habitat of the basin west of the Central Hill, and in floodplain habitat adjacent to and west of the parcel. Other native trees represented include California walnut (*Juglans californica*), coast live oak, and black cottonwood (*Populus trichocarpa*). Seedlings of other trees that suggest what could grow here as mature individuals include Western sycamore (*Platanus racemosa*), Fremont poplar (*Populus fremontii*), and red willow (*Salix laevigata*). Several native vines associated with this vegetation include clematis (*Clematis ligusticifolia*), desert grape *(Vitis girdiana*) (?) that is probably naturalized here, California blackberry, elderberry, and poison oak.

Flora

The flora of More Mesa is presented in detail by Steele (1982). Although checklists for the various portions of More Mesa were prepared for this earlier work, a separate checklist for the flora of the County parcel was not presented. A comparison of this previous work with the current surveys resulted in the following checklist. Additions include nine native species and nine naturalized exotic species, as follows:

Additional Native Species

Acer negundo box elder
Chenopodium berlandieri Berlandier's goosefoot
Distichlis spicata salt grass
Eleocharis parishii Parish's spike-rush
Epilobium canum California fuchsia
Juglans californica Southern California walnut
Rhamnus crocea redberry
Typha domingensis narrow-leaved cattail
Vitis girdiana desert grape (?)

Additional Naturalized Exotic Species

Acacia decurrens green wattle (?)
Carduus pycnocephalus Russian thistle
Cirsium vulgare common thistle
Cyperus alternifolius African umbrella plant
Hedera canariensis Algerian ivy
Leptochloa sp. spangletop
Phoenix sp. date palm
Polygonum arenastrum common knotweed
Senecio micanioides German ivy

Analysis of the Flora

Analysis of the combined checklists (Appendix I) reveals that 76 (43%) native species and 99 (57%) naturalized non-native species occur on the County parcel on More Mesa. These 175 species represent 126 genera from 48 plant families. The species observed on or adjacent to the County parcel include 82% of the 213 species identified for the entire 300 acres as reported (with additions) in Ferren and Smith (1982).

WILDLIFE RESOURCES

Ferren and Smith (1982) examined use of the More Mesa area by birds, mammals, and herptiles. Inventory methods included census and trapping within representative portions of the study site over a one-year period. These data were then augmented by literature review. Appendices to the report contain an inventory of migrant and resident vertebrate fauna of the More Mesa area (Fugle 1982; Lehman 1982a; and Sweet 1982).

The following discussion summarizes the results and conclusions of Ferren and Smith's (1982) investigation with respect to their evaluation of physiographic areas contained within the County-owned parcel. Further elaboration on the significance of these resources from a regional perspective is also provided. The recent study has enabled a more current assessment of the site's characteristics.

Nationally accepted common and scientific names for birds are found in the American Ornithologist's Union's Checklist of North American Birds and its supplements (AOU 1982, 1985, 1987, 1989). Scientific nomenclature for herptiles and mammals follows Collins et. al. (1987) and Jones et. al. (1982), respectively.

Birds

The list compiled by Lehman (1982a) is an exhaustive inventory of bird species for the project site. The number of species is too numerous to repeat in the context of this narrative, therefore Lehman's work (1982a) should be referenced for more detailed information on site-specific status for those species not treated in the following section.

Avian diversity was found to be substantially higher in wooded habitats relative to grasslands Lehman (1982a). This is a regional trend in that riparian and oak woodlands typically support an abundant and diverse avian component. Southern Coastal Oak Woodlands and Forested Wetlands are particularly well-represented on the County property (Figure 6). Both migrants and resident breeding species use these habitats for nesting and/or foraging. Grasslands are characteristically lower in avian diversity, however their importance as a foraging resource for wintering sparrows and sensitive raptor species must be recognized. More detailed discussion of the site's use by birds of prey is provided in subsequent sections of this report.

Mammals

Mammalian species that were recorded during the 1982 study (Fugle 1982) are typical of the habitat types sampled. The East and West Drainage Systems (Figure 4) hosted the greatest overall species diversity. Small mammal trapping grids established in the East and West Drainage and Central Hill physiographic areas indicated a relatively high but seasonal abundance of California vole (*Microtus californicus*) and western harvest mouse (*Reithrodontomys megalotis*). These rodents are critical prey items for the black-shouldered kite (*Elanus caeruleus*), a locally rare and declining bird of prey. Species such as the ornate shrew (*Sorex ornatus*), broad-footed mole (*Scapanus latimanus*), brush rabbit (*Sylvilagus bachmani*), and dusky-footed woodrat (*Neotoma fuscipes*) were restricted to the drainage systems. Evidence of larger mammals such as the common gray fox (*Urocyon cinereoargenteus*), common raccoon (*Procyon lotor*), long-tailed weasel (*Mustela frenata*), and striped skunk (*Mephitis mephitis*) was also detected. These wider-ranging species are expected to use the entire mesa, including the County-owned parcel.

Mention of the introduced mammals inhabiting More Mesa is pertinent because of their management implications. Both the feral (house) cat (*Felis catus*) and feral (domestic) dog (*Canis familiaris*) frequent the project site. Cats are particularly undesirable because of their predatory habitats on birds, small mammals, and herptiles. Dogs, if unattended by their owners may also harass wildlife. A more recent invader of the lowlands regions of California is the red fox (*Vulpes vulpes*). This species has rapidly expanded its range in the last 10 years (Jurek 1992) and is becoming increasingly more common in areas bounded by urban development. There are numerous records for the

red fox on More Mesa and in the adjacent Hope Ranch residential district within the last five years (SBMNH unpublished records).

Reptiles and Amphibians

Sweet (1982) concluded that the herptofauna of More Mesa is "...a depauperate sample of the typical species composition of a coastal mesa in Southern California." He recorded blackbelly slender salamanders (*Batrachoceps nigriventris*), western toad (*Bufo boreas*), Pacific treefrog (*Pseudacris regilla*), bullfrog (*Rana catesbeiana*), side-blotched lizards (*Uta stansburiana*), western fence lizards (*Sceloporus occidentalis*), southern alligator lizard (*Elgaria multicarinatus*), common kingsnake (*Lampropeltis getula*), and ringneck snake (*Diadophis punctatus*). There is suitable habitat for each of these species within the 35-acre County property. Reference to southwestern pond turtles (*Clemmys marmorata pallida*) in Atascadero Creek is also cited by Sweet (1982), but these records predated his work. Species that were unconfirmed, but possibly present on the mesa are also listed. There are no additional data that would change these earlier conclusions with respect to the possible inhabitants of the study area.

Overview of Ecosystem Dynamics and Temporal Changes in Habitat Values

Overview

Significant changes have occurred in the population status of many wildlife species over the last decade. Regional trends that were noted to have occurred, or were observed during the 1982 study have not been reversed. Species reported as uncommon and declining in the South Coast Region of Santa Barbara County have become even more rare in occurrence. In most cases, these observations were reflective of more widespread phenomena involving loss and degradation of habitat values and consequent population decline throughout the species' range.

Reasons for wildlife population decline are many, and in most cases, several factors interactively contribute to the process. Changing climatic conditions, urban and agricultural development, domestic water consumption, and increased human population densities are only a few of the agents commonly accepted as responsible for loss of species and their habitats.

Locally and regionally, prolonged drought conditions are thought to have caused or contributed to the decline of several species. Aquatic and semi-aquatic species suffer directly because of the impact on critical habitat and are indirectly affected through increased competition for available water reserves with domestic and agricultural use.

Other species are adversely affected by the cyclic or fluctuating nature of their prey populations. Small mammal populations may respond to drought conditions by a significant drop in productivity. This in turn affects the predatory species that rely on this resource for sustenance and reproduction. The birds of prey on More Mesa are an example of this predator/prey inter-relationship.

The following narratives summarize the site-specific status of sensitive wildlife species on More Mesa. The 1982 study by Ferren and Smith provides the basis for this assessment. Where information was available, the individual species accounts have been updated to provide a more current treatment of present conditions in the study area. Results of the Annual Audubon Bird Count for More Mesa and Atascadero Creek (a sub-unit within the greater South Coast Santa Barbara Count Area) were reviewed for the period 1981 to 1991 (SBMNH unpublished data files). Unfortunately these data were incomplete. Within this 10-year span, site-specific tallies were not available for the 1985/86 or 1989/90 counts. Although limited by temporal constraints (the census is one day in length) and subject to variability in level of coverage from year to year, the Audubon counts are useful as a record for the occurrence of sensitive bird species for which data are otherwise lacking. Cumulative totals for the South Coast Region count area, encompassing approximately 176 square miles, may suggest broader, regional trends. These data are published in the journal American Birds.

SENSITIVE HABITATS AND SPECIES

Definition

Sensitive biological resources were considered on both the habitat and individual species levels. Habitats are considered sensitive if they have a limited distribution, support protected plants and animals, have high wildlife value, or are particularly vulnerable to disturbance. Sensitive species are those that are listed as Rare, Threatened, or Endangered by the Federal and/or state government, or those that appear on various "watch lists" sponsored by academic institutions, conservation organizations, and wildlife agencies.

Policy Overview

Approximately 82% of the More Mesa property (246 acres) has been proposed for designation as Environmentally Sensitive Habitat (ESH) as defined in the County's Local Coastal Plan (LCP) (SBCo 1982). This designation is based largely on the presence of critical habitat for the black-shouldered kite. There are in addition, individual habitats found on the property which meet the criteria for ESH designation. These include the Southern Coast Live Oak Woodland; (Native) Valley and Foothill

Grasslands; and various wetland communities (see previous section) each of which add immeasurably to the area's biological values. Policies that accompany ESH designation are intended to protect sensitive resources. These policies regulate the kinds of development that can occur in and near such areas. Recommendations for preservation of these habitats are also contained in the County's Comprehensive Plan, Conservation Element (SBCo 1979). Furthermore, the "More Mesa Ecological System" is one of five regional systems identified the County's Master Environmental Assessment for the Goleta Planning Area (SBCo in preparation). The mesa is functionally connected to at least two of the other regional systems described, the Goleta Slough and Lower Atascadero/Maria Ygnacio Creek.

Individually, wetland habitats are afforded protections by state and Federal regulations, as well as local policy. Wetlands nationwide are under Federal jurisdiction pursuant to the Clean Water Act, Section 404 and Executive Orders 11990 (Protection of Wetlands) and 11988 (Floodplain Management), as amended. The California Fish and Game Commission (1992) requires permitting (Code Section 1601) for any activity that may impact wetland habitats. The Santa Barbara County LCP and Conservation Element contain specific policies for protection of wetlands, as previously stated.

Sensitive Plant Species

No plant species that are listed or proposed for listing (as endangered or threatened) by the CDFG (1990a, 1991b) or the USFWS Agency (1991a) occur at More Mesa. Likewise, the California Native Plant Society (Smith and Berg 1988) also has not listed or proposed for listing any plant species observed or reported from More Mesa. There are, however, several species on the mesa that are plants of special interest due to their uncommon or rare occurrence on the South Coast of Santa Barbara County. Although additional species were listed in Ferren and Smith (1982), we have reduced the list to three species (including one addition) as follows:

Species of Special Interest

_ at Carpinteria in Grassland

Brodiaea jolonensis Dwarf Brodiaea: ~~known currently on the South Coast~~ only from the vicinity of vernal pools in Isla Vista, and a single site on More Mesa in the old railroad bed just south of the County parcel (observed in spring 1982 and 1988). Native to California and Baja California.

Juglans californica Southern California Black Walnut: Southern California Walnut Woodland has been proposed for listing as an endangered California plant community, although *Juglans californica* apparently does not occur locally as a dominant in a community. In the Santa Barbara region, this walnut is generally restricted to riparian

corridors, and reaches its northern limit of distribution in northern Santa Barbara County (e.g. Rincon Creek). actually at Gaviota Str.

At More Mesa, black walnut trees occur as a few individuals in the oak woodland and forested wetland communities. We have not determined if these individuals are (1) the result of hybridization with the English Walnut (*Juglans regia*) that is grown locally, (2) introduced trees of the native species, or (3) persistent native trees that represent elements of the natural vegetation.

Sparganium eurycarpum Bur-reed: known currently on the South Coast only from two sites at Goleta Slough, and from the abandoned channel of Atascadero Creek at More Mesa. More common in coastal freshwater marshes of the North County. Widely distributed in North America.

Sensitive Wildlife Species

Threatened or Endangered Species

Wildlife species listed as Threatened or Endangered by the Federal and/or state wildlife agencies are protected by legislation embodied in the Federal Endangered Species Act of 1973, as amended and California Endangered Species Act of 1984, as amended. There are no state and/or Federally-listed wildlife species known to reside in or regularly use the project area.

Candidate Species for Federal Listing

Candidate species under consideration for federal listing appear in the Federal Register (USFWS 1992). These are species that may eventually be added to the List of Endangered and Threatened Wildlife, depending on the results of investigations to determine whether such status is warranted. Candidate species are organized into one of three categories, with Category 1 classification indicating the highest priority for formal listing. The CDFG has also published lists of State and Federal Endangered Animals of California that includes candidate species presently under review for state listing (CDFG 1990b, 1991a).

Southwestern Pond Turtle (*Clemmys marmorata pallida*)
Status: Category 1 Candidate / State Protected / Jennings List

Pond turtles are found in a variety of freshwater habitats including ponds, rivers, streams, and reservoirs. Optimal habitat consists of water bodies surrounded by vegetation and affording deep plunge pools for ready escape from predators.

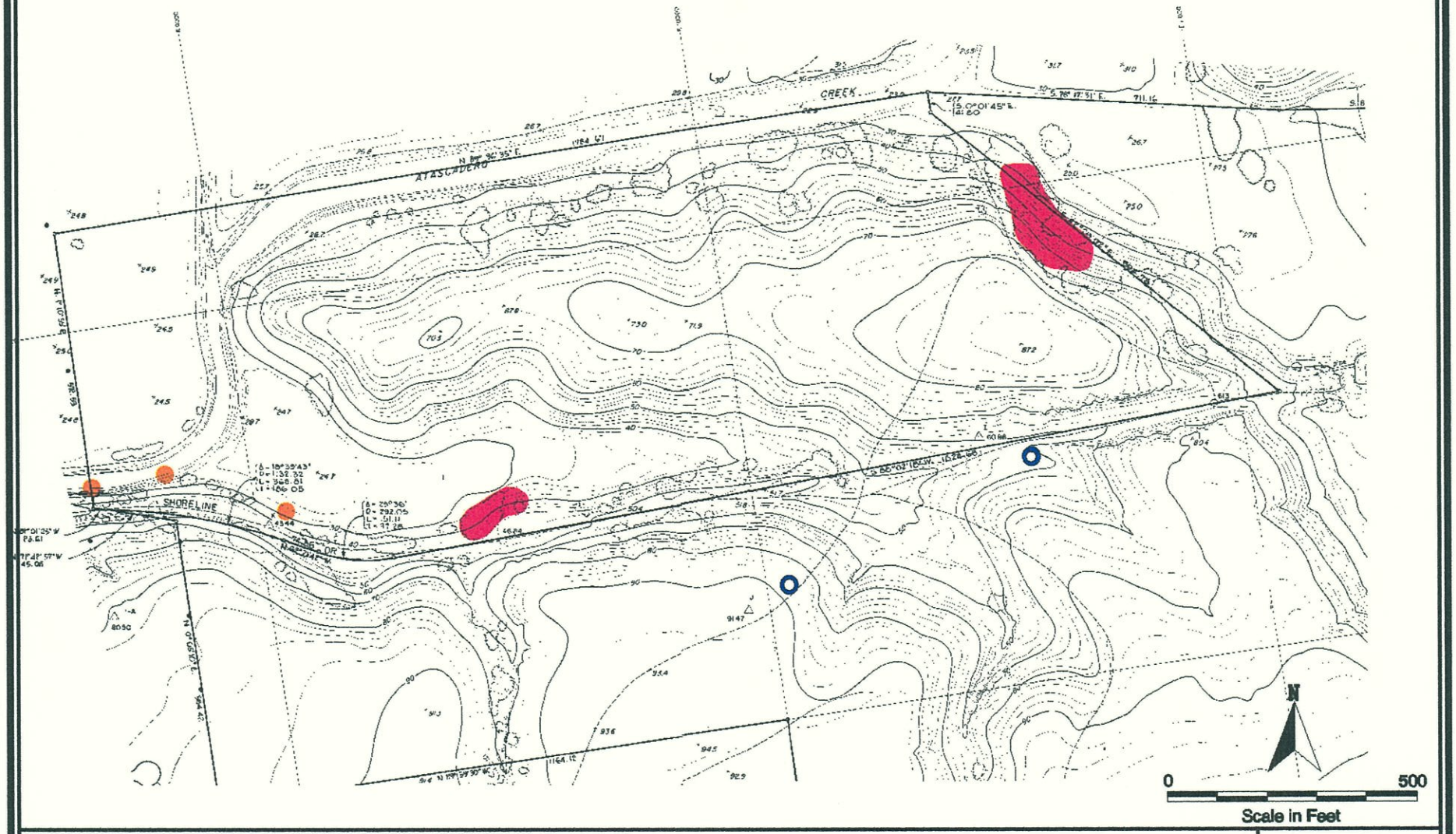
Sweet (1982) listed the pond turtle as present in portions of Atascadero Creek below Patterson Avenue at the time of his study. He also cites seven records for the species from the immediate vicinity of the County-owned parcel between 1977 and 1979 (Figure 7). Because of it's small size and disjunct distribution, Sweet concluded that the available evidence did not support the presence of a viable breeding population. Since 1982, the species' range has contracted throughout the region. Moreover, site-specific habitat conditions have worsened as a result of flood control maintenance, drought, increased visitation by humans and domestic pets, and invasion by noxious weeds.

The southwestern pond turtle may persist in some segments of Atascadero Creek, particularly in upper reaches of the drainage. It is also possible that the species occurs in the project vicinity. Gray (pers. com. 1992) reported seeing a pond turtle in Atascadero Creek just downstream (west) from the project site in 1983 or 1984. Specimens were also observed in portions of the creek subject to flood control maintenance in 1988 (Sweet pers. com. 1992). In spite of the lack of recent records, recolonization from outside the area or reintroduction efforts (both prospects having significant obstacles to overcome) could conceivably be successful in re-establishing a resident population of pond turtles within the project boundaries.

California Red-legged Frog (*Rana aurora draytonii*)
Status: Category 1 Candidate / State Protected / Jennings List

Sweet (1982) postulated that two additional candidate species, the California red-legged frog and coast horned lizard, might eventually be found in the vicinity of More Mesa, although their presence was not detected during his investigation. Neither species has since been confirmed from the project area.

Resident (introduced) bullfrogs (*Rana catesbeiana*) in the Atascadero Creek drainage, as documented by Sweet (1982) argue against the re-establishment of *R. aurora* because of the former's predatory habits (Moyle 1973). Habitat degradation trends described above provide further support for the opinion that red-legged frogs are no longer present within the lower reaches of this drainage.



Sensitive Wildlife Records for the Project Site

FIGURE 7

- Black-Shouldered Kite--Historic Nest Site
- Burrowing Owl--Individual Bird and Burrow (Sightings Winter 1980)
- Southwestern Pond Turtle (Sightings 1977-79)

SOURCE: Lehman and Sweet in Ferren & Smith (1982) and Gray, 1992 Personal Communication

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San Diego Horned Lizard (*Phrynosoma coronatum blainvillii*)
Status: Category 2 Candidate / State Protected / Jennings List

Taxonomic uncertainties concerning the subspecific affinities of *P. coronatum* cloud the issue of site status with respect to this animal. It is extremely doubtful that this particular subspecies will be found to occur on or near-site in the future. The presence of domestic pets (especially cats) and human visitors pose a substantial impediment to the survival of a small, isolated population of horned lizards on the mesa.

Species of Special Concern

Species of special concern are those that have not been formally listed by the Federal or state wildlife agencies, nor are they presently under consideration for Federal listing. However, declining trends in population size and range have been documented for several species over the last century. Where these patterns appear to be symptomatic of critical decline, the species is often recognized on "watch lists" published by agency or privately sponsored publications. Having been so designated, these sensitive species become a focus in resource planning and management. These animals are considered potential candidates for state listing and are afforded protection from local extirpation pursuant to the California Environmental Quality Act (CEQA), Section 15380.

The most commonly referenced watch lists for wildlife are the Audubon Blue List (Tate 1986) and Remsen (1978) for birds, Williams (1986) for mammals, and Jennings (1987) for herptiles. Sources of local information on status and distribution include Lehman (1982b, pers. com. 1992) and Gray, Holmgren, Lentz, and Sweet (pers. comms. 1992).

Silvery Legless Lizard (*Anniella pulchra*)
Status: State Candidate / Jennings List

Citing historic records for this species from Goleta, Hope Ranch, and the Mesa area of Santa Barbara, Sweet (1982) considered it a possible current inhabitant of More Mesa. The species shows regional affinity for habitats with a sandy substrate, and is especially abundant in protected sand dunes. However, it has not since been recorded from the project vicinity, therefore its status should be regarded as tentative.

Cooper's Hawk (*Accipiter cooperi*)
Status: Remsen and Audubon Blue Lists

Lehman (1982a) regarded this avian predator as a rare transient to the More Mesa area. Cooper's hawks were observed twice during Lehman's year-long survey. They were recorded on More Mesa during the Annual Audubon Bird Count six of the eight years

between 1981 and 1991 for which data were available. Cooper's hawks were observed onsite as recently as spring of 1992 (Greaves pers. com. 1992). Given the availability of preferred woodland and shrub-type habitats afforded by surrounding residential development, its occurrence should more accurately be considered as uncommon during fall and winter. Breeding is a remote possibility in the forested wetland habitats onsite, but there is no record of nesting in the project vicinity and the species appears to have been eliminated as a breeder from the lower reaches of South Coastal canyons (Lehman 1982b).

Sharp-shinned Hawk (*Accipiter striatus*)
Status: Remsen and Audubon Blue Lists

The sharp-shinned hawk was listed as a rare migrant and winter visitor to the project area by Lehman (1982a). Habitat preferences are similar to its congener, the Cooper's hawk. Although the species was not detected during field surveys, it has been recorded in four of the eight Annual Audubon Bird Counts reviewed for the subject report (SBMNH unpublished data files). Five birds were sighted during the December 28, 1991 count. It is expected as an uncommon to rare visitor to the project site.

Northern Harrier (*Circus cyaneus*)
Status: Remsen and Audubon Blue Lists

Open grasslands, scrublands, agricultural areas, and marshes are the harrier's preferred foraging habitats. The species most often nests in riparian and marsh vegetation.

The northern harrier is discussed in some detail in Lehman's 1982 evaluation of More Mesa avifauna. Special attention was devoted to this species because of its sensitive regional status and the fact that More Mesa was a site of regular visitation by "...one or two wintering Marsh Hawks (= northern harrier) annually at least since 1971." During the period of his year-long investigation (1981-82), up to two individuals were regularly seen between the months of October to March. Lehman concluded that the favored areas for hunting were largely along the southern half of the site, while noting that the species occurred in all grassland areas on the mesa. The County parcel is indicated as a "secondary foraging area" in Lehman's 1982 range map for More Mesa.

Since the 1982 study, the Northern harrier, in addition to other sensitive birds of prey, has declined significantly in terms of its regional occurrence. The species was recorded on More Mesa in seven of the eight Annual Audubon Bird Counts reviewed, where its numbers ranged from one to four individuals. The most recent sightings were in December 1991 (three individuals). This pattern of visitation reinforces Lehman's

(1982a) contention that More Mesa is of significant regional importance to the Northern harrier.

Black-shouldered (= White-tailed) Kite (*Elanus caeruleus*)
Status: State Candidate / Local Concern

More Mesa has long been recognized as having critical importance to the black-shouldered kite in a regional context (Lehman 1982a and 1982b, Waian 1973). Lehman (1982a) presented a comprehensive treatment of site utilization by the black-shouldered kite. Communal roosting, breeding, and foraging on More Mesa have been thoroughly documented. The ESH designation and relevant planning policies in the County's LCP are based largely on the importance of More Mesa's habitats to the black-shouldered kite (SBCo 1982).

More Mesa has historically been the largest and most consistently used communal roosting site for kites in the Goleta Valley (Waian 1973). In addition, the site has supported from one to three nesting pairs since at least the mid-1970s (Gray unpublished field notes and pers. com. 1992, Waian 1973). A biologist who conducted long-term studies of the black-shouldered kite population in the South Coast Region of Santa Barbara County concluded that More Mesa "...is the single most important piece of land for the white-tailed (= black-shouldered) kite from Gaviota to Santa Barbara and possibly further south. There is no comparable large grassland area in the region that has exhibited a potential for providing food for that many birds for an extended period of time" (Waian 1972).

Lehman (1982a) presented a detailed account of kite roosting and nesting activity on More Mesa during the period of his study. He estimated the size of the roost to be 40 over-wintering birds in 1981-82, with a high count of 79 in November of 1981. Lehman (1982a) reported two active nest sites on the mesa in 1982, including one on the County parcel. This site, located in the live oak grove on the northeast slope of the Central Hill (Figure 7), has been occupied several times by nesting kites over the last 15+ years (Gray pers. com. 1992). A large specimen oak that was used for nesting in recent years has fallen within the last year (Gray pers. com. 1992). There is a second site on the County-owned property that has been used historically for nesting, in the forested wetland to the east of the historic creek channel (Figure 7) (Gray 1992 pers. com.). The Central Hill portion of the site was considered a "secondary" foraging area for kites. Principal roosting areas were located in the Eastern Drainage System southeast of the County property (Figure 4).

When the Goleta Valley kite population was at its peak in the mid-1970s, the More Mesa roost contained up to 110 individuals (Lehman 1992). Observations by local biologists indicate that More Mesa has not been used as a primary roosting area for at least five

years (Lehman, Gray, Greaves and Holmgren pers. comms. 1992). In the mid-to late 1980s, the main roosting site for the Goleta Valley population apparently shifted to the "Los Carneros Wetlands" site near the intersection of Hollister and Los Carneros Avenues. The local black-shouldered kite population has declined dramatically since that time. As expected, the decrease in wintering kites corresponds to a decline in nesting frequency. Successful breeding has not been documented anywhere in the Goleta Valley since 1988 or 1989 (Lehman 1992).

The population biology of kites is poorly understood. Numbers may undergo substantial fluctuations from year to year. Roost and nest sites are generally occupied from one year to the next so that "traditional" local territories have been maintained for several years. The numbers of kites along the South Coast have been consistently low for at least the last ten years relative to the mid-to-late 1970's. Numbers of kites recorded during the Annual Audubon Bird Counts from 1973-1983 ranged from 23 to 98 birds with a mean of 42 (American Birds 1974-1984). From 1984-1991, counts of 29, 21, 21, 18, 18, 10, 4 and 0 were documented (American Birds 1984-1990 and SBMNH unpublished data files). Estimated size of the total resident Goleta Valley population in 1990 was about six to eight birds (Holmgren pers. com. 1990). The South Coast population now appears to be at an all-time low. The species was not recorded during the Annual Audubon Count in December 1991; a remarkable fact considering that as many as 98 birds were recorded during the 1975-76 census. As of this writing, there are evidently no resident black-shouldered kites maintaining fall/winter territories or using traditional roost sites within the Goleta Valley (Holmgren and Lehman pers. comms. 1992).

Prolonged drought conditions, development of foraging habitat, and increased disturbance to roost and nest sites due to expanding urbanization are the probable factors contributing to regional population decline. This negative trend underscores the importance of the More Mesa area as a refuge for black-shouldered kites. Its documented use for roosting, nesting, and foraging, may result from its proximity to the Atascadero/Maria Ygnacio drainage, Goleta Slough, and other prime foraging areas. As such, the site is a critical link in the regional habitat profile for this species.

Merlin (*Falco columbarius*)
Status: Remsen and Audubon Blue Lists

The merlin typically inhabits grasslands, agricultural fields, sloughs, and beaches. The species is considered a rare to uncommon transient to the South Coast Region (Lehman 1982b). Lehman (1982a) reported the occurrence of this species on More Mesa to be on the order of "...one or two individuals...each year...", and noted that single individuals had over-wintered on the site twice during the mid-1970's. The merlin has been recorded on the mesa as recently as December of 1988 and was listed on three of eight

Audubon Counts for the period reviewed (SBMNH unpublished field data). Lehman's (1982a) conclusion that More Mesa "...probably cannot be considered of major importance to (the merlin) regionally.." is still valid. The species undoubtedly occurs as an irregular transient to the site. However, it has wide-ranging habitats therefore, the mesa cannot be considered critical habitat.

Screech Owl (*Otus kennicottii*)
Status: Local Concern

In his study, Lehman (1982a) noted that the Goleta Valley population of this small owl had declined to only a few breeding pairs. One resident breeding pair was known to inhabit "...the northeastern edge of the More Mesa study area...". These birds frequented the stand of oaks on the northeast-facing slope of the County-owned parcel (Figure 6). Screech owls prefer wooded habitats for nesting and harborage. The screech owl has been observed in the vicinity of the project sight as recently as September 1992 (Gray pers. com. 1992).

Burrowing Owl (*Athene cunicularia*)
Status: Remsen and Audubon Blue Lists

In his Master's thesis, Lehman (1982b) characterized the burrowing owl as a very uncommon and local winter visitor to the Santa Barbara Region. This species has become progressively more uncommon over the past 10 years, especially along the South Coast.

The grassland habitat on More Mesa is ideally suited to this species. At the time of Lehman's 1982 More Mesa study, only one-to-four individuals typically wintered along the South Coast. Lehman noted that More Mesa was a consistent wintering site, and that burrowing owls had been reported during five of the seven years preceding his study. Observations of burrowing owls in the early 1980's in the vicinity of the County parcel were mapped by Lehman (1982a). These records are included in Figure 7.

Burrowing owls were not sighted during any of the Annual Audubon Bird Counts reviewed for this report. There have apparently been no sightings of this species on the mesa since 1982.

Short-eared Owl (*Asio flammeus*)
Status: Remsen and Tate Lists

Short-eared owls are recorded as rare to very uncommon local fall transients and winter visitors to South Coastal Santa Barbara County (Lehman 1982b). Extensive grasslands and marshes are frequented while hunting.

Lehman (1982a) stated that More Mesa was "...the only known location which annually supports this species in Santa Barbara County." Immediately prior to his 1982 study, from one-to-three individuals had wintered there every year at least since 1971. Two were present during the period of his investigation, from October through March of 1981/82.

Short-eared owls have not been sighted on the mesa since December of 1988 when one bird was present during the Annual Audubon Bird Count (SBMNH unpublished data files). A single bird was also recorded on the previous count in January 1988. There is only one record for short-eared owls on the mesa between 1982 and 1988, that of a single individual in October 1983 (Gray unpublished field notes). Local drought conditions and overall population decline are commonly accepted as the reasons for this change in status.

EXTRINSIC FACTORS AFFECTING BIOLOGICAL RESOURCE VALUES

Historic Impacts

Historic land use has substantially altered the character of More Mesa's native habitats. In some cases, this has resulted in permanent changes in site topography and drainage. Agricultural enterprises may have been present as long ago as the mid-1800's (Ferren and Smith 1982). Livestock grazing, followed later by cultivation were the two most predominant of these practices. The Southern Pacific Railroad, Coast Division, was extended across the mesa in 1887 (Figure 3). The railroad cut is still much in evidence today. More recently, residential development has encroached upon portions of More Mesa. Recreational use of the property has steadily increased since the early 1960's, with the urbanization of surrounding properties. Each of these factors has contributed to a transformation of plant and wildlife habitat values.

A review of historic aerial photographs indicated that the Central Hill portion of the County-owned property was cultivated or disced as recently as the late 1970's or early '80's (Ferren and Smith 1982). The railroad cut follows the southern property boundary, as previously described. A major access road for the Southern California Gas Company ROW parallels the northern property line. There is a system of secondary roads and pathways that traverses the Central Hill and its slopes (Figure 3). A comparison of

contemporary and historic aerial photographs shows that these trails have become much more numerous over the last ten years.

The historic US Coast Survey map (Figure 5) shows that the course of Atascadero Creek has been significantly altered. This was done in order to increase the capacity of the channel to convey runoff during high storm flows. Confinement of the stream to its present course (the northern streambank is cemented) has had profound effects on vegetation. The vegetation map (Figure 6) demonstrates some of the effects of stream channelization. The original streamcourse corresponds to the south-trending bend that is now dominated by palustrine (i.e. seasonally flooded) rather than riverine (i.e. perennially flooded) vegetation. Both the old and new streamcourses are clearly evident from the vegetation map.

Current Impacts

Ferren and Smith's 1982 study identified several sources of current or on-going impacts to the site's biological integrity. Without exception, each of these factors was clearly in evidence at the time of the subject investigation. In fact, the problems resulting from these uses has in most cases become worse. Additional sources of resource degradation were also observed during the current study.

Motorized Off-road Vehicles (ORVs)

Motorcycle (i.e. dirt bike) use was recognized by the Ferren and Smith (1982) as highly detrimental to plants and wildlife. Recent field surveys indicate that this activity has not subsided and in fact, appears to have increased in scope and intensity. Direct impacts include an increase in the number of trails, damage to vegetation, and disturbance to wildlife. Widespread erosion damage is a cumulative and lasting result of these impacts. The effects of motor vehicles are even more devastating when they occur during the winter storm season, when soils are saturated and most vulnerable to rutting and erosion. Erosion is found at various points on the slopes of the Central Hill, within the railroad cut at the east end of the property, and at several points along Atascadero Creek that are used for access to the site. Cars and trucks often travel the dirt roads on other portions of More Mesa, however this is not presently a major problem on the County parcel.

Mountain Bikes

A demand for dirt road and trail access has accompanied the phenomenal increase in popularity of mountain bikes. With its close proximity to urban and residential areas

and ready access via the established bike path, More Mesa has become a major use area for mountain bike enthusiasts. Although generally not as damaging as motorcycles, mountain bikes nonetheless contribute substantially to the erosion problems on the property. This is primarily due to the number of riders and their propensity to explore new trails.

Erosion

As stated above, erosion is a cumulative result of historic and current land uses. Vegetation has been denuded through agriculture, vehicular traffic, and trail use. Grade cuts for the railroad bed and dirt access roads have exposed large areas to erosional processes. Alteration of surface drainage patterns has also contributed immensely to the problem. Excessive vehicle traffic (both motorized and non-motorized) has exacerbated the situation, resulting in chronic slope erosion. A review of aerial photographs shows that soil erosion has become progressively worse over the last twenty years.

Trash Dumping

Aside from the obvious aesthetic impacts associated with illegal trash disposal, there is the indirect effect of habitat degradation. Recent dumping of vegetative refuse (i.e. clippings and cuttings) was observed during the subject field survey. This activity introduces undesirable weedy vegetation that can compete with and may eventually replace the native plant species. Portions of Atascadero Creek appear to be most affected.

Weed Infestation

Weed invasion has been facilitated through a number of avenues, including dumping. Several species of introduced, invasive plants have colonized the County parcel. The eucalyptus trees on the north-facing slope (Figure 6) are effectively competing with the native oaks that once predominated. Eucalyptus were likely intentionally introduced many years ago. Several additional weedy species have become established as a direct or indirect result of grazing and cultivation.

Flood Control and Utility Company Maintenance

The Santa Barbara County Flood Control District conducts periodic maintenance along the lower portions of Atascadero Creek. These activities include dredging and removal

of vegetation, both mechanically and through use of herbicides. Segments of the creek adjoining the County parcel are affected by these operations. If not done in a conscientious manner, loss of vegetation and wildlife habitat on County property may result.

The Southern California Gas Company maintains easements for their pipeline facilities that follow the northern and southern site boundaries. These easements measure forty feet in width. Routine maintenance consists of blading the ROW with a motor grader or track-vehicle (e.g. bulldozer). This procedure was performed within approximately one month of the subject field reconnaissance. Vegetation had been removed from the entire easement; at some points in excess of the allowable 40 feet. The equipment used had also travelled a dirt road traversing the slope of the Central Hill in order to gain access between the northern and southern easements. Oak trees had been limbed in order to allow passage of equipment.

Potential (Future) Impacts

Public use of the subject parcel is likely to increase given that the property has been recently purchased by the County. Continued recreational use of the County property has the potential to further degrade the character of the site due to all of the current sources of impact discussed above. In general, human visitation to the greater More Mesa area can be expected to increase (barring attempts to limit public use) with continued population growth in nearby urban areas. The goal of the management plan to be developed for the property is to provide necessary resource protection while allowing appropriate types of public use.

MANAGEMENT RECOMMENDATIONS

More Mesa's diverse biological attributes and sensitivities clearly warrant protection. This can best be achieved through responsible land stewardship. To this end, the development of the management plan for the County parcel provides an excellent opportunity to meld applicable LCP policies with compatible recreational uses.

It is recommended that biological resource preservation be a primary objective in the formulation of the management plan. Given the site's ESH designation, the plan should be driven by priorities of resource protection, with recreational use limited to those activities that are consistent with LCP policy. In light of the resource constraints and land use conflicts previously described, the following general management recommendations are proposed.

Regulate the Nature of Allowable Recreational Use

Certain recreational pursuits are clearly not consistent with the goals of resource protection. This has been demonstrated by past and current activities that cause damage to plant and wildlife habitats. Compatible user groups must be identified in the management plan.

Motorized vehicles should be excluded from the property entirely, except perhaps for special maintenance or emergency access. More intrusive types of transportation, (including bicycles and equestrians) must be prohibited from trails that are vulnerable to erosion. This will require some control over present and potential access points. Vehicle barriers and signs may be effective to some extent. Seasonal trail closures to all forms of visitation may become necessary. Examples of such include trails in proximity to kite nesting or roosting territories or where inclement weather makes vegetation and soils especially vulnerable to pedestrian damage. Interpretive signs should be effective in regulating visitor use to a great extent. However, some form of enforcement (i.e. regular patrolling by the management authority or Sheriffs Department) may be necessary.

Designate Permanent Trail System

In order to minimize the impact of visitor use, a designated trail system should be established. Only by eliminating the haphazard manner in which the property is currently traversed can the negative effects of human visitation be alleviated. Trails should be designed to avoid sensitive areas (i.e. wetlands, roosting and nest sites). To the extent possible, existing trails should be used rather than creating new ones.

The trail system should be designed to allow access to some of the more interesting features of the site. To this end, appropriate ingress and egress points and links to access corridors in the surrounding area should be investigated. At least one "loop trail" is recommended. Existing trails and roadways that do not fit within this scheme should be closed, abandoned, and revegetated.

Design and Implement Erosion Repair and Revegetation Program

The field assessment suggests that there are excellent opportunities to arrest some of the deleterious effects of prior land abuses and thereby improve existing habitat values. The need for erosion control is clearly evident. After eliminating or alleviating the source of the problem, site-specific plans for remediation should be developed. These measures may include installation of temporary retaining structures, construction of above and below-ground drainage features, and revegetation.

Revegetation should consist of weed eradication efforts and replanting or reseeding. Both of these measures, if effectively implemented, would increase habitat value for plants and wildlife.

The County parcel is typical of the region in having numerous naturalized exotic species (i.e. 99 species, 57% of the flora), some of which can dominate the landscape. These dominant species are often perennials and are called "invasive exotic species". Extensive growth of them can result in the elimination of native species, altered habitat values for wildlife, and degradation of the aesthetic appearance of an area. We have prepared the following list of natural species that are candidates for removal from the County parcel or elsewhere on More Mesa. Those species with an asterisk are considered potential invasive exotics and should be given priority for eradication.

Grasses

**Arundo donax* giant reed
**Cortaderia jubata* pampas grass
Cynodon dactylon Bermuda grass
Oryzopsis miliacea millet rice grass
**Pennisetum clandestinum* kikuyu grass
**Phalaris aquatica* Harding grass

Forbs

Brassica nigra black mustard
Brassica geniculata summer mustard
**Carduus pycnocephalus* Russian thistle
**Centaurea repens* Russian knapweed
**Cirsium vulgare* common thistle
Conium maculatum poison hemlock
**Foeniculum vulgare* sweet fennel
Gaura odorata gaura
**Lactuca serriola* prickly lettuce
Lavatera cretica cretan lavatera
Marrubium vulgare white horehound
Picris echioides bristly ox tongue
Plantago lanceolata common plantain
Raphanus sativus wild radish
**Rumex crispus* curly dock
**Silybum marianum* milk thistle
Sonchus spp. sow-thistle

Vines and Trailing Shrubs

**Carpobrotus edulis* hottentot fig
Hedera canariensis Algerian ivy
**Senecio micanioides* German ivy
Tropaeolum majus nasturtium
**Vinca major* periwinkle

Shrubs and Trees

**Eucalyptus* spp. gum tree
**Myoporum laetum* myoporum
**Nicotiana glauca* tree tobacco
Opuntia ficus-indica Indian fig
Pyracantha crenatoserrata pyracantha
**Ricinus communis* castor bean
**Tamarix* spp. salt cedar

Revegetation would be appropriate in concert with most weed eradication efforts. There is ample opportunity for revegetation on the County parcel. The oak woodland habitats would benefit by enhancement through supplemental planting and maintenance. The degraded wetlands, in particular the large tract of ruderal habitat near the west end of the site (Figure 6), has potential to be reclaimed as viable wetland. Details of revegetation and erosion control would require a more thorough analysis of site-specific conditions.

Promote Educational Use and Scientific Research

Successful implementation of the visitor access component of the plan is dependent on instilling a sense of respect and appreciation for resource values. Much can be gained toward this end by promoting educational use of the property. Natural history walks, field trips by local schools, and functions sponsored by groups like The Audubon Society, Sierra Club, and others would increase public awareness of the site's biological amenities. Participation by responsible user groups should be encouraged.

Coordinate Maintenance Activities with Easement Holders

Flood control and utility line maintenance practices should be reviewed with the easement-holders. Plans for maintaining these easements in operative condition while

providing for habitat protection should be developed. In short, the minimum level of disturbance that must accompany such activities should be determined. Representatives from the County Flood Control District and Gas Company should be contacted and made aware of these concerns. The management authority should strive for a cooperative agreement with the agency and utility company to minimize the amount of damage to native habitat.

LONG-TERM AND REGIONAL PLANNING CONSIDERATIONS

Supplemental Land Acquisitions

The possibility of supplemental land acquisitions should be investigated. Enlarging the area to be held in preserve status would greatly enhance the possibilities for maintaining a viable preserve and would facilitate the implementation of its management policies. In assessing priorities for future acquisition, the following criteria should be considered: additional properties should have high resource value (Ferren and Smith 1982); they should be contiguous with those already in open space preserve; supplemental lands should afford access and continuity to the County-owned parcel.

Relationship with Surrounding Private Property

Effective management of the subject parcel is an unrealistic goal if its importance in a larger context is not recognized. The majority of the More Mesa area remains in private ownership. Access to these properties is largely uncontrolled. The provisions of the management plan must consider the 35-acre parcel as part of the larger whole, both from ecosystem and land use perspectives. Contacts with adjacent landowners should be made and their participation with planning and management decisions that affect the entire area should be encouraged. Without some level of support (or at least concurrence) from the adjacent landowners, prospects for effective long-term management and preservation are severely compromised.

Regional Perspective

We support the integration of the management plan for the County-owned parcel within a larger, regional preserve system. This carries one step further the bio-regional concept discussed in the previous section. Within the Goleta Planning Area, five "regional systems" have been identified. The regional planning approach outlined as follows would link four of these individual components into an ecologically functional and inter-related preserve system, with the Goleta Slough as its centerpoint.

To assist with the preservation and management of the Goleta Slough Ecosystem, a Goleta Slough Management Committee has been formed. Members of this committee include representatives of various property owners, regulatory agencies, and conservation organizations. Definitions proposed for standardization include the following:

Goleta Slough: The contiguous wetlands contained in the Goleta Valley that are currently or were historically estuarine wetlands and deepwater habitats within the Goleta Slough Estuary, excluding the nontidal portion of streams that flow into the estuary.

Goleta Slough Estuary: The name of the largest estuary in the Goleta Valley. As used herein, it includes only those wetlands and deepwater habitats that currently receive tidal flushing.

Goleta Slough Ecosystem: The combined physical and biotic features of (1) the wetlands (including estuarine, riverine, and palustrine types) and deepwater habitats within the Goleta Slough; (2) adjacent uplands; and (3) contiguous streams in the Goleta valley.

Goleta Slough Management Area: The Goleta Slough Ecosystem as delineated on the Management Area Map and as approved by the Goleta Slough Management Committee.

Goleta Slough State Ecological Reserve: That area defined in the City of Santa Barbara LCP.

Goleta Slough Watershed: The entire geographic area where surface runoff or subsurface flows eventually drain into Goleta Slough. This includes (1) the watersheds of Atascadero, Maria Ygnacio, San Jose, San Pedro, Las Vegas, Carneros, and Tecolotito creeks; (2) portions of the UCSB Main and Storke Campuses; and (3) portions of Isla Vista, the Storke Ranch, and Delco properties and wetlands owned by the CDFG.

The County parcel is adjacent to Atascadero Creek and, as defined above, is located within the proposed Goleta Slough Ecosystem and Ecosystem Management Area. It is located within the Coastal Region of the Goleta Valley where efforts are underway to preserve and restore open space and habitat areas from More Mesa, westward along Atascadero Creek to Goleta Beach County Park and Goleta Slough State Ecological Reserve, to UCSB Storke Campus and elsewhere within the Goleta Slough Ecosystem, and further westward to Del Sol Open Space and Vernal Pool Reserve in Isla Vista, Coal Oil Point Reserve at UCSB West Campus, portions of the West Devereux Specific Plan Area, and the Santa Barbara Shores Specific Plan Area. The County parcel is a critical link in this effort because of it location, habitats, and passive recreational

potential. We propose that any planning for the site be linked to the larger effort in planning open space, habitat protection, and recreation (access and interpretation).

SUMMARY

More Mesa supports a variety of upland and wetland habitat types. Its urban surroundings and connection with outlying habitats make the site an important refuge for plants and wildlife. The occurrence of several sensitive and declining species further underscores the critical nature of the site in a regional context.

The recently purchased County parcel is representative of the resource amenities that have been described for the greater More Mesa area. The parcel's habitat diversity imparts significant biological resource values. This portion of the mesa is strategically located in that it encompasses or borders features of local and regional importance (e.g. habitat for sensitive wildlife, coast live oak woodlands, native grasslands, and various types of wetlands). These resources are protected by Federal, state, and (perhaps most importantly) local regulatory policies.

Past and present land uses have somewhat compromised the integrity of the site's resources. If allowed to continue unabated, these factors will continue to degrade the quality of plant and wildlife habitats.

The need for a management plan that incorporates measures for resource protection while allowing passive recreational use of the property is clearly indicated. Recommendations have been proposed with these objectives in mind. The primary goal of the management plan should be to preserve the site's natural resources. This position is consistent with applicable planning and regulatory policies.

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APPENDIX I

A CHECKLIST OF THE VASCULAR PLANTS OF THE AUSTIN\ANDREWS PARCEL MORE MESA, SANTA BARBARA COUNTY, CALIFORNIA

Draft
21 September 1992

Kingdom Plantae
Division Trachyophyta
Subdivision Pterophyta
Class Filicae

Aspidiaceae Wood Fern Family

Dryopteris arguta Wood Fern

Subdivision Pterophyta
Class Angiospermae
Subclass Dicotyledoneae

Aceraceae (Maple Family)

Acer negundo ssp. *californicum* Box Elder

Aizoaceae (Carpet Weed Family)

**Carpobrotus edulis* Hottentot Fig

Amaranthaceae (Amaranth Family)

**Amaranthus albus* Tumbleweed

Anacardiaceae (Sumac Family)

Toxicodendron diversilobum Poison Oak

Apiaceae (Carrot Family)

**Apium graveolens* Wild Celery
**Conium maculatum* Poison Hemlock
**Foeniculum vulgare* Sweet Fennel

Apocynaceae (Dogbane Family)

**Vinca major* Periwinkle

Araliaceae (Aralia Family)

**Hedera canariensis* Algerian Ivy

Asteraceae (Sunflower Family)

Ambrosia psilostachya ssp. *californica* Western Rag Weed
**Artemisia biennis* Marsh Sagebrush
Artemisia californica California Sagebrush
Artemisia douglasiana Mugwort
Aster subulatus Slender Marsh Aster
Baccharis douglasii Salt Marsh Baccharis
Baccharis pilularis ssp. *consanguinea* Coyote Brush
Baccharis salicifolia Mule Fat
**Carduus pycnocephalus* Italian Thistle
**Centaurea repens* Russian Knapweed
**Cirsium vulgare* Common Thistle
**Conyza bonariensis* South American Horseweed
**Conyza canadensis* Common Horseweed
**Cotula coronopifolia* Brass Buttons
Euthamia occidentalis Western Goldenrod
Gnaphalium californicum Green Everlasting
**Gnaphalium luteo-album* Cudweed Everlasting
Gnaphalium microcephalum White Everlasting
Hemizonia fasciculata Fascicled Tarweed
Heterotheca grandiflora Telegraph Weed
Isocoma veneta var. *vernonioides* Coast Golden Bush
**Lactuca serriola* Prickly Lettuce
**Matricaria matricarioides* Pineapple Weed
**Picris echioides* Bristly Ox Tongue
**Senecio micanioides* German Ivy
**Silybum marianum* Milk Thistle
**Sonchus asper* Prickly Sow-thistle
**Sonchus oleraceus* Sow-thistle
**Tragopogon porrifolius* Salsify
Xanthium stumarium var. *canadense* Cocklebur

Boraginaceae (Borage Family)

Heliotropium curassavicum var. *oculatum* Seaside Heliotrope

Brassicaceae (Mustard Family)

**Brassica geniculata* Summer Mustard
**Brassica nigra* Black Mustard
**Brassica rapa* ssp. *sylvestris* Field Mustard
**Raphanus sativus* Wild Radish
**Rorripa nasturtium-aquaticum* Water-cress

Cactaceae (Cactus Family)

**Opuntia ficus-indica* Indian Fig

Caprifoliaceae (Honeysuckle Family)

Sambucus mexicana Blue Elderberry

Caryophyllaceae (Pink Family)

**Silene gallica* Windmill Pink
**Spergula arvensis* Corn Spurrey
**Spergularia bocconii* Boccone's Sand Spurrey
Spergularia marina Salt Marsh Sand Spurrey
**Spergularia villosa* Hairy Sand Spurrey
**Stellaria media* Common Chickweed

Chenopodiaceae (Goosefoot Family)

Atriplex patula ssp. *hastata* Arrowleaf Saltbush
**Atriplex semibaccata* Australian Saltbush
**Beta vulgaris* Garden Beet
**Chenopodium ambrosioides* Mexican Tea
Chenopodium berlandieri Berlandier's Goosefoot
**Chenopodium murale* Nettle-leaved Goosefoot
Salicornia virginica Pickleweed
**Salsola australis* Russian Thistle

Convolvulaceae (Morning-glory Family)

Calystegia macrostegia ssp. *cyclostegia* Purple-bracted Morning-glory
**Convolvulus arvensis* Bind-weed

Cucurbitaceae (Gourd Family)

Marah macrocarpa Wild Cucumber

Euphorbiaceae (Spurge Family)

Eremocarpus setigermis Dove Weed
**Euphorbia lathyrus* Caper Spurge
**Ricinis communis* Caster Bean

Fabaceae (Pea Family)

**Acacia decurrens* Green Waddle (?)
**Medicago polymorpha* Bur-clover
**Melilotus alba* White Sweetclover
**Melilotus indica* Yellow Sweetclover

**Trifolium hirtum* Rose Clover
**Vicia benghalensis* Purple Vetch
**Vicia sativa* Common Vetch

Fagaceae (Oak Family)

Quercus agrifolia Coast Live Oak

Frankeniaceae (Frankenia Family)

Frankenia salina Alkali Heath (syn = *F. grandifolia*)

Geraniaceae (Geranium Family)

**Erodium botrys* Broad-leaf Filaree
**Erodium cicutarium* Redstem Filaree
**Geranium dissectum* Cutleaf Geranium

Hydrophyllaceae (Waterleaf Family)

Pholistoma auritum Pholistoma

Juglandaceae (Walnut Family)

Juglans californica Southern California Black Walnut

Lamiaceae (Mint Family)

**Marrubium vulgare* White Horehound
Stachys bullata California Hedge Nettle

Lythraceae (Loosestrife Family)

Lythrum hyssopifolia Loosestrife

Malvaceae (Mallow Family)

**Lavatera cretica* Cretan Lavatera
**Malva parvifolia* (Cheeseweed)
Malvella leprosa Alkali Mallow (syn = *Sida leprosa*)

Myoporaceae (Myoporum Family)

**Myoporum laetum* Myoporum

Myrtaceae (Myrtle Family)

**Eucalyptus camaldulensis* (River Red Gum)
**Eucaluptus globulus* (Blue Gum)

Onagraceae (Evening Primrose Family)

**Epilobium* sp. (?)
Epilobium canum California Fuschia (syn = *Zauchneria california*)
Epilobium ciliatum Northern Willow Herb (syn = *E. adenocaulon*)

Oxalidaceae (Wood-sorrel Family)

Oxalis albicans White Wood-sorrel
**Oxalis pes-caprae* Bernuda-buttercup, Sour-grass

Plantaginaceae (Plantain Family)

**Plantago lanceolata* English Plantain
**Plantago major* Common Plantain

Platanaceae (Sycamore Family)

Platanus racemosa California Sycamore

Polygonaceae (Buckwheat Family)

**Polygonum arenastrum* Common Knotweed
**Polygonum aviculare* Common Knotweed
Polygonum lapathifolium Willow Smartweed
Polygonum punctatum Dotted Water Smartweed
**Rumex crispus* Curly Dock
**Rumex conglomeratus* Whorled Dock, Green Dock
Rumex salicifolius Willow Dock

Primulaceae (Primrose Family)

**Anagallis arvensis* Scarlet Pimperel

Ranunculaceae (Buttercup Family)

Clematis ligusticifolia Virgin's Bower

Rhamnaceae (Buckthorn Family)

Rhamnus californicus Coffeeberry
Rhamnus crocea Redberry

Rosaceae (Rose Family)

Heteromeles arbutifolia Toyon
**Prunus ilicifolia* ssp. *lyonii* Catalina Cherry (?)
**Pyracantha crenatoserrata* Pyracantha
Rubus ursinus California Blackberry

Rubiaceae (Madder Family)

**Galium aparine* Common Bedstraw

Salicaceae (Willow Family)

Populus fremontii Fremont's Cottonwood
Populus trichocarpa Black Cottonwood
Salix laevigata Red Willow
Salix lasiolepis Arroyo Willow
Salix lasiandra Yellow Willow
Salix sessilifolia Sandbar Willow (syn = *S. hindsiana* var. *leucodendroides*)

Scrophulariaceae (Figwort Family)

Scrophularia californica California Figwort
**Veronica anagallis-aquatica* Water Speedwell

Solanaceae (Nightshade Family)

**Datura meteloides* Jimsonweed
**Nicotiana glauca* Tree Tobacco
Solanum douglasii Douglas' Nightshade

Tamaricaceae (Tamarisk Family)

**Tamarix* sp. Salt Cedar

Tropaeolaceae (Tropaeolum Family)

**Tropaeolum majus* Garden Nasturtium

Urticaceae (Nettle Family)

Urtica dioica ssp. *gracilis* var. *holosericea* Giant Creek Nettle

Verbenaceae (Verbena Family)

Verbena lasiostachys Hairy-spike Verbena

Vitaceae (Grape Family)

Vitus girdiana Desert Grape (?)

Subdivision Pterophyta
Class Angiosperma
Subclass Monocotyledoneae

Amaryllidaceae (Amaryllus Family)

Brodiaea jolonensis Dwarf Brodiaea

Arecaceae (Palm Family)

**Phoenix* sp. Date Palm (?)

Cyperaceae (Sedge Family)

**Cyperus alternifolius* African Umbrella-sedge
Cyperus eragrostis Tall Umbrella-sedge
Eleocharis parishii Parish's Spike-rush
Scirpus californicus California Bulrush, California Tule
Scirpus maritimus Prairie Bulrush, Alkali Bulrush

Juncaceae (Rush Family)

Juncus bufonius Toad Rush
Juncus patens Common Rush
Juncus phaeocephalus Dark-headed Rush

Iridaceae (Iris Family)

Sisyrinchium bellum Blue-eyed Grass

Poaceae (Grass Family)

**Arundo donax* Giant Reed
**Avena barbata* Slender Wild Oat
Avena fatua Wild Oat
Bromus carinatus California Brome
**Bromus diandrus* Ripgut Grass
**Bromus hordeaceus* Soft Chess (syn = *B. mollis*)
**Bromus rubens* Red Brome
**Bromus willdenovii* Resque Grass
**Cortaderia jubata* Pampas Grass (syn = *C. atacamensis*)
**Cynodon dactylon* Bermuda Grass

Distichlis spicata Coastal Saltgrass
**Echinochloa crusgalli* Barnyard Grass
Elymus condensatus Giant Ryegrass
Elymus triticoides Alkali Ryegrass
Hordeum californicum California Barley
**Hordeum geniculatum* Mediterranean Barley
**Hordeum murinum* Hare Barley (syn = *H. leporinum*)
**Leptochloa* sp. Spangletop
**Lolium multiflorum* Italian Ryegrass (syn = *L. perenne* ssp. *multiflorum*)
**Oryzopsis miliacea* Smilo Grass, Millet Ricegrass
**Paspalum dilatatum* Dallis Grass
Paspalum distichum Knotgrass
**Pennisetum clandestinum* Kikuyu Grass
**Phalaris aquatica* Harding Grass
**Poa annua* Annual Bluegrass, Wintergrass
**Polypogon monspeliensis* Rabbitsfoot Grass
**Vulpia myuros* var. *hirsuta* Foxtail Fescue (syn = *F. megalura*)
**Vulpia myuros* var. *myuros* Rattail Fescue

Sparganiaceae (Bur-reed Family)

Sparganium eurycarpum Bur-reed

Typhaceae (Cattail Family)

Typha domingensis Narrowleaf Cattail
Typha latifolia Broadleaf Cattail

Zannichelliaceae (Horned Pondweed Family)

Zannichellia palustris Horned Pondweed

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* = a non-native, naturalized plant taxon

(?) = identification is questionable