PHASE I STUDY FOR THE TUNA CANYON SIGNIFICANT ECOLOGICAL AREA NO. 10

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PHASE I REPORT FOR
TUNA CANYON
SIGNIFICANT ECOLOGICAL AREA
(SEA NO. 10)

This report describes the current biological condition of the Tuna Canyon Significant Ecological Area No. 10. It includes descriptions of the plant and wildlife communities based upon field surveys and review of other reports and information for the region. The report also includes information on ownership patterns within the Significant Ecological Area (SEA) and an evaluation of the original intent of the SEA designation and current activities within the SEA. A number of management measures and boundary changes for the SEA are suggested. All of the efforts were designed to provide a framework for the preservation of the Tuna Canyon SEA No. 10 and to furnish those proposing actions that would affect the SEA with a baseline analysis to guide their individual biological assessments and mitigations.

I. INTRODUCTION

The Tuna Canyon SEA No. 10 is located on the south slope of the Santa Monica Mountains in southwestern Los Angeles County (see Exhibit 1, Regional Vicinity Map). The SEA lies directly north of Pacific Coast Highway (State Route 1) and the City of Malibu Beach, California, and just west of Topanga Canyon. It contains the main drainages of Tuna Canyon and Pena Canyon and their tributaries, and encompasses upland areas separating these drainages. The SEA is bisected by the winding Tuna Canyon Road that follows the main drainage for most of its length, then turns west into the upland portion of the SEA (see Exhibit 2, Boundary Map). The entire Tuna Canyon SEA No. 10 is located on the Topanga 7.5-minute series USGS quadrangle map (Township 1S, Range 16W, Sections 19, 30, and 31; Range 17W, Sections 24 and 25; and the eastern portion of the Boca de Santa Monica Land Grant). Aerial photographs and USGS topographic maps of SEA No. 10 at 1-inch equals 1,000 feet scale are available at the Los Angeles County Regional Planning Department.

Tuna Canyon and Pena Canyon are north-south drainages that empty directly into the Pacific Ocean. Elevations within the SEA range from approximately 100 feet at the mouth of Tuna Canyon, up to 1,800 feet along the northern ridge. The slopes are generally steep and rocky and only level off near the northern limits of the SEA.

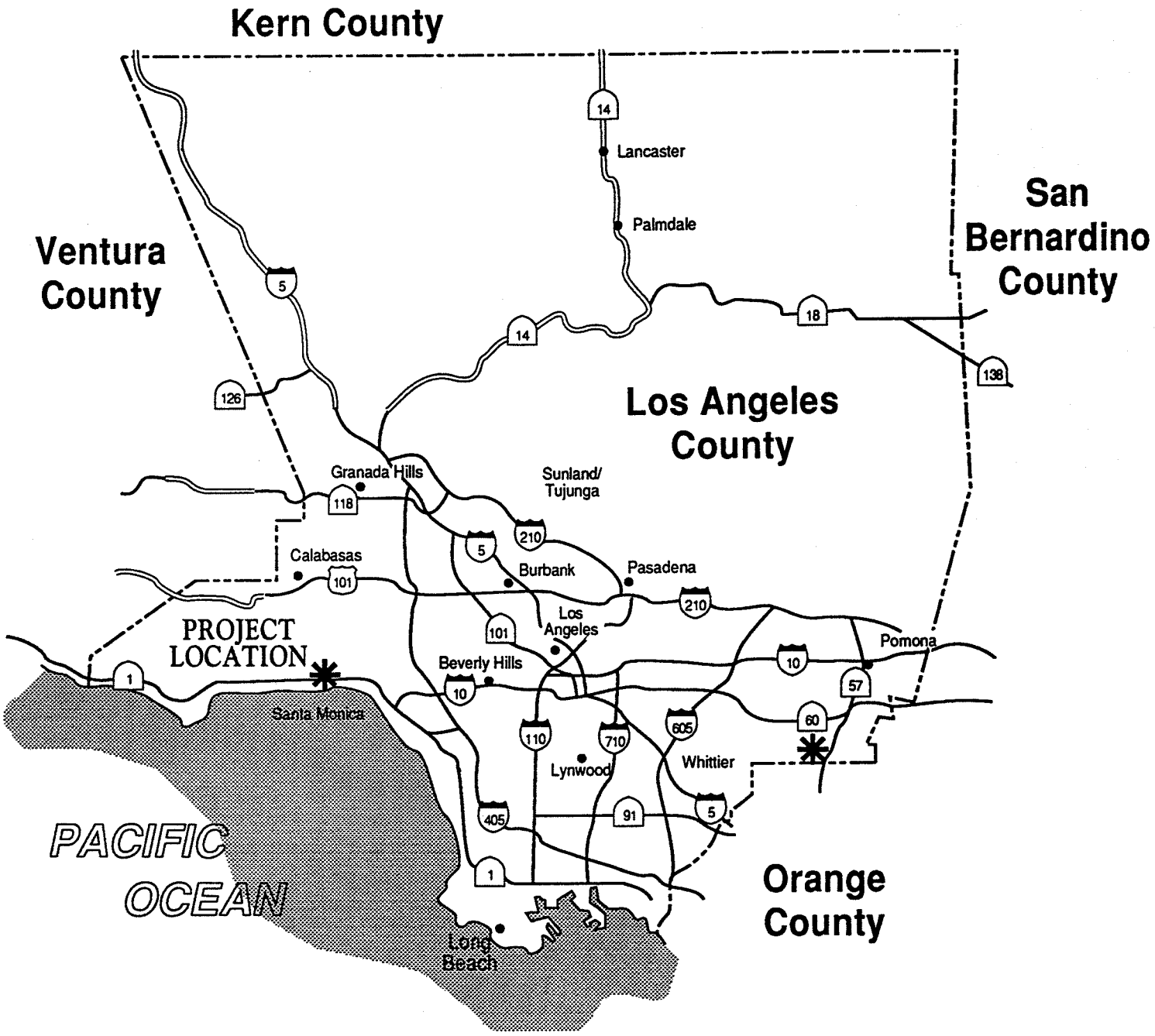

Exhibit **1**

Tuna Canyon SEA No. 10
Regional Vicinity Map

LEGEND

Significant Ecological Area

Exhibit **2**

Tuna Canyon SEA No. 10

NORTH 0' 500' 1000' 1500'

The England and Nelson (1976) report on the SEAs indicates that Tuna and Pena Canyons are the last drainages in the central and eastern Santa Monica Mountains that have not been subjected to development pressures. At the time of the England and Nelson (1976) report, the only development was Tuna Canyon Road. It further states that there had been no disturbance of either the main watershed or between the mouth of the drainages and the coast. Much of the terrain of the SEA is too steep and rocky to support extensive development.

A year-round stream is present in Tuna Canyon and represents a limited resource in the Santa Monica Mountains and the region. The combination of permanent water, riparian vegetation, and coastal exposure provides conditions that support healthy wildlife populations. According to England and Nelson (1976), animals use the stream as a water source and forage in the adjacent coastal sage scrub and chaparral habitats. They also indicate that Tuna and Pena Canyons are important for migratory songbirds and, occasionally, waterfowl.

The status of the SEA at the time of England and Nelson's study (1976) was that the vegetation was in good condition. The canyon bottom of Tuna Canyon supported a healthy riparian woodland and the hillsides were covered in dense chaparral and coastal sage scrub. They attributed these conditions to the lack of development, that had been limited by the steep, rocky terrain and the presence of only one access road. England and Nelson (1976) also suggested that the SEA boundaries were such that no buffer zones were required; that the watersheds in Tuna and Pena Canyons would be protected.

Based on England and Nelson's analysis, compatible uses for the Tuna Canyon SEA No. 10 were determined to be low intensity recreational. Low intensity recreational uses are defined as single-day visits, such as hikes or nature study. No overnight camping, equestrian trails, or other activities that would cause long-term disturbance to the vegetation and wildlife would be compatible with preserving the integrity of the SEA (England and Nelson 1976). The SEA is listed as significant under criteria that includes biotic communities, vegetative associations, and habitat for plant and animal species that are one of a kind or are restricted in distribution (England and Nelson 1976). It is also indicated that the SEA contains habitat that serves as a concentrated breeding, feeding, resting, or migrating ground and is limited in availability, and that the area would provide for the preservation of relatively undisturbed examples of the natural biotic communities in Los Angeles County.

In addition, the Los Angeles County General Plan (1988) and the 1986 Malibu Local Coastal Program/Land Use Plan (LCP/LUP) provide more specific planning guidelines for compatible uses, including low density residential development, restricted commercial uses, public and semi-public uses essential to the maintenance of public health and safety, agricultural uses, and natural resources extraction, per a conditional use permit consistent with protection of SEA resources. Pending implementation of the Malibu LCP/LUP, developments in the LCP area are subject to the provisions of the Los Angeles County General Plan and the approval of the California Coastal Commission.

II. METHODS

The existing biological conditions at the Tuna Canyon SEA No. 10 are described below based on the results of field surveys supplemented by review of documentation pertinent to the SEA and regional plant and wildlife distributions. Field surveys were conducted on foot and by vehicle where access was permitted. Where access was not obtained, the SEA was surveyed with binoculars and by analysis of the aerial photograph.

Plant community designations are derived from Holland (1986); the corresponding California Natural Diversity Data Base (CNDDB) codes are indicated after each plant community name. Plant species names, where not available from Munz (1974), are taken from Raven et al. (1986), Abrams (1923, 1944), and Abrams and Ferris (1951, 1960). References used for wildlife taxonomy include: Emmel and Emmel (1973) and Mattoni (1990) for butterflies; Jennings (1983) for amphibians and reptiles; the American Ornithologists' Union (1983 and supplements) for birds; and Jones et al. (1982) for mammals. Wildlife distributions were derived from the California Wildlife Habitat Relationships System (CWHRS 1990), Jennings (1983), Stebbins (1985), Garrett and Dunn (1981), Hall and Kelson (1981), Burt and Grossenheider (1976), Jones et al. (1982), Ingles (1965), and DeLisle et al. (1986).

III. OWNERSHIP PATTERNS AND CURRENT USES

Land ownership patterns were derived from the County Tax Assessor's Roll. Parcel numbers compiled from the Tax Assessor's Roll were forwarded to Quality Mapping Services for compilation of lot lines for the SEA. The lot line data were mapped at a scale of 1-inch equals 1,000 feet. Analysis of the land ownership data for Tuna Canyon SEA No. 10 indicates that

114 parcels are held by 38 owners. The largest landowners within the SEA are PCH Partners and Curt J.P.S. Ventures II. The names of current landowners are given in the list of parcel holders (Appendix A). The locations of existing land holdings, as of October 1991, their holdings are shown on the ownership maps available at the Los Angeles County Regional Planning Department.

There is some evidence of human activity within the SEA. A small ranch has been established in the northwestern corner of the SEA and subsequent cattle grazing and associated disturbance has removed much of the native shrub vegetation. Also, a number of single-family dwellings have been built in the northcentral section of the SEA. These units are well-spaced and separated by stands of chaparral and oak woodlands. There was evidence of past off-road vehicle use on the fire breaks within the SEA, but these activities are severely limited by signs and substantial barriers to entry established by landowners in the region.

The southern part of the SEA, along the immediate coast, has been annexed into the City of Malibu Beach (indicated on ownership maps). This part of the SEA is no longer subject to review by SEATAC. Proposed developments within the annexed portion of the SEA would be subject to the jurisdiction of the City of Malibu Beach and the California Coastal Commission.

A number of homeless people have set-up camp within the riparian woodland in the lower part of Tuna Canyon near Pacific Coast Highway. This encampment will be discussed further under the Development Pressure Analysis (Section VI).

IV. EXISTING BIOLOGICAL RESOURCES

The descriptions of plant and wildlife communities below are intended to provide a general overview of the species encountered during current and past surveys of the Tuna Canyon SEA No. 10 and those that can reasonably be expected to occur in the SEA. This section also provides necessary natural history information for assessment of the biological resources in the area. A complete list of observed plant species and observed and expected wildlife species is provided in the Floral/Faunal Compendia (Appendix B).

PLANT COMMUNITIES

Southern Sycamore - Alder Riparian Woodland (62400)

The perennial streams of Tuna and Pena Canyon support southern sycamore - alder riparian woodland. This community is primarily confined to the bottom of the two main drainages and lower reaches of the larger tributary canyons. Mature trees of California sycamore (Platanus racemosa) and white alder (Alnus rhombifolia) dominate this riparian community. California sycamores occur throughout the length of the drainage as scattered individuals or as groups of trees. White alder generally occurs as groups of trees in wetter areas along the drainage. Shrub to tree-size arroyo willows (Salix lasiolepis) are found individually or in clumps in open areas of sycamore - alder riparian woodland. Coast live oak (Quercus agrifolia) and California bay (Umbellularia californica) trees occur within and along the periphery of this community and in many of the side canyons.

In areas where the woodland is fairly dense, lack of sunlight precludes much understory growth. More open areas support a sparse to lush understory of herbs, shrubs, and lianas. Typical understory species include poison oak (Toxicodendron diversilobum), southern honeysuckle (Lonicera subspicata), California blackberry (Rubus ursinus), mugwort (Artemisia douglasiana), and coffeeberry (Rhamnus californica).

Southern Willow Scrub (63320)

Southern willow scrub occurs in a few patches along the streams in Tuna and Pena Canyons. This community is composed of dense, shrubby stands of arroyo willow with occasional shrubs of mulefat. Due to the density of the canopy, an understory is generally lacking. The largest occurrence of this community is in an area of approximately one half acre in the highest reaches of Pena Canyon.

Coast Live Oak Woodland (71160)

Coast live oak (Quercus agrifolia) trees occur along canyon bottoms and mesic slopes in areas throughout the SEA. The north-facing slope near the head of Tuna Canyon supports a relatively extensive oak woodland that runs from the canyon bottom to the top of the slope and the head

of Tuna Canyon to approximately the point where the drainage turns south. The understory of the oak woodland near the canyon bottom is relatively lush with poison oak, canyon sunflower (Venagasia carpesiodes), heart-leaved penstemon (Keckiella antirhinoides), southern honeysuckle, and coffeberry in a deep layer of oak leaf litter. In drier areas upslope, the understory is fairly sparse, consisting mostly of non-native grasses such as wild oats (Avena sp.) with scattered coastal sage scrub shrubs such as coastal sagebrush (Artemisia californica), sticky monkeyflower (Diplacus longiflorus), and saw-tooth goldenbush (Hazardia squarrosa. The oak woodland nearest the ridge is comprised of more widely separated trees with a very open understory - the result of recent burns. Giant wild rye (Elymus condensatus) dominates the understory and is accompanied by annual grasses, poison oak, cudweed (Gnaphalium sp.), canyon sunflower, and caterpillar phacelia (Phacelia cicutaria).

Outside this large area of oak woodland, oak trees occur individually or in small groups along drainages and north-facing slopes in chaparral and coastal sage scrub. The understory is generally not significantly different from the surrounding shrub cover.

Ceanothus megacarpus Chaparral (37840)

The majority of the upland areas of the SEA away from the immediate coast support Ceanothus megacarpus chaparral vegetation. This chaparral community is characterized by extremely dense, tall shrubs dominated by big-podded ceanothus (Ceanothus megacarpus). Other large shrubs common in this chaparral include chamise (Adenostoma fasciculatum), green-barked ceanothus (Ceanothus spinosus), laurel sumac (Malosma laurina), and Mexican elderberry (Sambucus mexicana). The density of shrubs in this community, for the most part, precludes the development of much of an understory. More open expressions of this chaparral, primarily on drier slopes, support smaller shrubs typical of coastal sage scrub.

Chamise Chaparral (37200)

Small to large patches of chamise chaparral occur throughout the SEA, primarily on dry ridges with thin soils. This community is characterized by stands of chamise (Adenostoma fasciculatum) that, in some areas, dominate the vegetation to the exclusion of the shrubs characteristic of the more diverse and extensive Ceanothus megacarpus chaparral in the area. The chamise chaparral also tends to be lower growing and less dense than the Ceanothus megacarpus chaparral. Black

sage (Salvia mellifera), Spanish bayonet (Yucca whipplei), coastal sagebrush, and California melic (Melica californica) are common in open areas and along the periphery of chamise chaparral vegetation.

Diegan Coastal Sage Scrub (32500)

The steep, generally south-facing slopes along the immediate coast within the SEA support coastal sage scrub vegetation. Large shrubs of laurel sumac in a matrix dominated by coastal sagebrush typify this community in the area. Other common shrubs in this community include California buckwheat (Eriogonum fasciculatum), ashy-leaved buckwheat (Eriogonum cinereum), black sage, and California bush sunflower. Spanish bayonet, California wishbone-bush (Mirabilis californica), giant wild rye, giant needlegrass (Stipa coronata), and small-flowered needle grass (Stipa lepida) are less conspicuous components of the coastal sage scrub. This fairly open vegetation supports a sparse cover of annual, non-native grasses and annual herbs.

WILDLIFE

While the potential presence of wildlife species can be reasonably predicted from knowledge of the plant communities present, many species are not restricted to one community and may occur in several communities. This is especially true of habitats with similar plant species composition and structure, or communities that provide exceptional resources. Most wildlife species observed at the Tuna Canyon SEA No. 10 are common, widespread, and often highly adaptable species. A comparison of the wildlife abundance and diversity between habitat types would show that the riparian areas support more wildlife species than the adjacent drier shrub habitats. Oak woodlands in drier habitats also provide important habitat for wildlife species. A complete listing of all wildlife species observed and expected to occur in the SEA is included in the Faunal Compendium (Appendix B).

Amphibians and Reptiles

The presence of two well-developed riparian areas and the variety of structural features in the Tuna Canyon SEA provide many opportunities for amphibians. The most common amphibian species in the area are the California newt (Taricha torosa), black-bellied salamander (Batrachoseps nigriventris), western toad (Bufo boreas), California treefrog (Hyla cadaverina), and

Pacific treefrog (Hyla regilla). Less common but possibly occurring in the SEA are the arboreal salamander (Aneides lugubris) and ensatina (Ensatina eschscholtzi) that have been recorded in Topanga Canyon several miles to the west (DeLisle et al. 1986).

Reptile species are expected to be more diverse and abundant in the SEA because of their adaptations to more xeric conditions found in chaparral and coastal sage scrub. Some reptiles also benefit from the availability of permanent water in Tuna Canyon and the presence of oak woodlands. Typical reptile species in the SEA include western fence lizard (Sceloporus occidentalis), side-blotched lizard (Uta stansburiana), western skink (Eumeces skiltonianus), southern alligator lizard (Gerrhonotus multicarinatus), California kingsnake (Lampropeltis getulus), striped racer (Masticophis lateralis), gopher snake (Pituophis melanoleucus), two-striped garter snake (Thamnophis hammondi), and western rattlesnake (Crotalus viridis).

Less common reptiles in the SEA are associated with specific habitat types, such as oak woodlands or grasslands. Those that may occur in the Tuna Canyon SEA No. 10 in drier shrub or grassland habitats include the Coast horned lizard (Phrynosoma coronatum) and western whiptail (Cnemidophorus tigris). Oak woodlands may support the western blind snake (Leptotyphlops humilis), night snake (Hypsiglena torquata), common kingsnake (Lampropeltis getulus), and California mountain kingsnake (Lampropeltis zonata). The rugged, rocky terrain in the upper reaches of the SEA are especially suitable for the uncommon lyre snake (Trimorphodon biscutatus).

Birds

Bird species found in the coastal sage scrub and chaparral as permanent, year-round residents include the California quail (Callipepla californica), mourning dove (Zenaida macroura), greater roadrunner (Geococcyx californianus), Anna's hummingbird (Calypte anna), scrub jay (Aphelocoma coerulescens), common raven (Corvus corax), bushtit (Psaltriparus minimus), Bewick's wren (Thryomanes bewickii), blue-gray gnatcatcher (Polioptila caerulea), wrentit (Chamaea fasciata), California thrasher (Toxostoma redivivum), orange-crowned warbler (Vermivora celata), rufous-sided towhee (Pipilo erythrophthalmus), California towhee (Pipilo crissalis), lark sparrow (Chondestes grammacus), and house finch (Carpodacus mexicanus).

Oak and riparian woodlands support several permanent resident bird species, such as red-tailed hawk (Buteo jamaicensis), American kestrel (Falco sparverius), great horned owl (Bubo virginianus), acorn woodpecker (Melanerpes formicivorus), Nuttall's woodpecker (Picoides nuttallii), northern flicker (Colaptes auratus), plain titmouse (Parus inornatus), house wren (Troglodytes aedon), Hutton's vireo (Vireo huttoni), common yellowthroat (Geothlypis trichas), and song sparrow (Melospiza melodia).

These year-round residents are supplemented by transient species that migrate through the area, summer residents that spend the winter to the south, and winter visitors that appear in larger numbers outside of the breeding season. As England and Nelson indicated (1976), the healthy riparian woodlands in Tuna and Pena Canyons are likely to attract to large number of migratory birds. These species may include Cooper's and sharp-shinned hawks (Accipiter cooperi and A. striatus), common poorwill (Phalaenoptilus nuttallii), black-chinned hummingbird (Archilochus alexandri), Allen's hummingbird (Selasphorus sasin), western wood-peewee (Contopus sordidulus), Pacific-slope flycatcher (Empidonax difficilis), several swallow species, ruby-crowned kinglet (Regulus calendula), hermit thrush (Catharus guttatus), warbling vireo (Vireo gilvus), yellow-rumped warbler (Dendroica coronata) and several other warbler species, black-headed grosbeak (Pheucticus melanocephalus), golden-crowned and white-crowned sparrows (Zonotrichia atricapilla and Z. leucophrys), dark-eyed junco (Junco hyemalis), and hooded and northern orioles (Icterus cucullatus and I. galbula).

Mammals

The presence of a year-round water source increases the suitability of the Tuna Canyon SEA No. 10 for a diverse mammal community. In addition, the natural drainages and ridgelines associated with Tuna and Pena Canyons create opportunities for the movement of large mammals throughout the region. Also, the diversity of habitats and transitions from shrub communities to riparian woodlands contributes to the density and diversity of mammals that occur within this SEA.

Mammals typical of the chaparral and coastal sage scrub communities in the SEA include desert cottontail (Sylvilagus audubonii), California ground squirrel (Spermophilus beecheyi), California pocket mouse (Perognathus californicus), Pacific kangaroo rat (Dipodomys agilis), western harvest mouse (Rheithrodontomys megalotis), deer mouse (Peromyscus maniculatus), California mouse

(Peromyscus californicus), brush mouse (Peromyscus boylei), dusky-footed woodrat (Neotoma fuscipes), and coyote (Canis latrans).

The woodland communities in the SEA support a number of medium to large mammals, and several others that rely on the deeper soils and leaf litter. The larger mammals expected to occur include Virginia opossum (Didelphis virginiana), gray fox (Urocyon cinereoargenteus), raccoon (Procyon lotor), striped skunk (Mephitis mephitis), bobcat (Felis rufus), and mule deer (Odocoileus hemionus). Tuna and Pena Canyons may also support one or more mountain lions (Felis concolor) that are heavily reliant on the availability of habitat linkages to maintain their home range needs. Other mammals expected to be heavily dependent upon the woodlands include ornate shrew (Sorex ornatus), Yuma myotis (Myotis yumanensis), brush rabbit (Sylvilagus bachmani), Botta's pocket gopher (Thomomys bottae), ringtail (Bassariscus astutus), and long-tailed weasel (Mustela frenata).

SENSITIVE SPECIES

This section describes the plant and wildlife species present or potentially present in the Tuna Canyon SEA No. 10 that have been afforded special recognition by federal, state, and local resource conservation agencies due to limited or declining populations. The potential for the occurrence of sensitive plant and wildlife species was first determined through review of the CNDDB (1991) data for the Topanga USGS quadrangle. This was supplemented by review of the following sources:

- **Plants.** USFWS (1990), CDFG (1990), CNPS (1988), and McCauley (1986).
- **Wildlife.** California Wildlife Habitat Relationships System (CWHRS 1990), USFWS (1990), CDFG (1990), Williams (1986), and Remsen (1978).

While not all of the species in the discussion to follow have been observed in the Tuna Canyon SEA No. 10, there is the potential for them to occur due to regional records and the presence of suitable habitat in the SEA. The potential for their occurrence in the SEA is assessed based on field surveys and review of other documentation.

Sensitive Plant Species

Lyon's pentachaeta (Pentachaeta lyonii) is a federal Category 1 candidate for listing as endangered or threatened and a state-listed endangered species. This annual member of the sunflower family generally occurs in grassy openings in chaparral. The range of this species formerly included coastal Los Angeles to the Santa Susana Mountains and Santa Catalina Island.
There are approximately thirteen reported extant populations of this species, primarily in the Santa Monica Mountains.

Although none has been reported from the SEA, the Tuna Canyon SEA does possess potential habitat for Lyon's pentachaeta. There is a historical record of the species from the Malibu Hills. Any projects proposed for this SEA should include focused, in season surveys for this species.

Braunton's milkvetch (Astragalus brauntonii) is a federal Category 2 candidate for listing as threatened or endangered. Braunton's milkvetch occurs in a variety of habitats, usually appearing after a fire or other disturbance. It is often associated with calcareous soils. The range of this species includes the northern end of the Santa Ana Mountains to the southern foothills of the San Gabriel Mountains, the Santa Monica Mountains, and the Simi Hills.

Braunton's milkvetch has not been reported from the Tuna Canyon SEA. However, as a fire-follower, the species is only apparent under certain conditions. Given the right conditions, Braunton's milkvetch may occur in the Tuna Canyon SEA. Any projects proposed for this SEA should include focused, in season surveys for this species.

Sensitive Wildlife Species

The **Santa Monica Mountains katydid** (Neduba (Aglaothorax) longipennis) is a recently described species of shield-back katydid that is a federal Category 2 Candidate for listing as endangered or threatened. This species is endemic to the Santa Monica Mountains. Katydids are insects that mimic leaves to avoid detection by predators. Shield-back katydids are typically wingless, nocturnal, and found in brushy habitats. Discovered in the mid-seventies by D.C.F. Rentz and David Weissman, the Santa Monica Mountains katydid was first located at the extreme southern part of Piedra Gorda Canyon near Big Rock Drive (the type locality), just west of the SEA (Rentz and Weissman 1981). The species inhabits chaparral, coastal sage scrub, and probably riparian

vegetation in the bottom of coastal canyons. Little is known about this katydid, but it appears to be active from July through early September.

Although there are no records for the Santa Monica Mountains katydid from Tuna Canyon, the proximity of collection sites and the contiguous chaparral between collection sites and the SEA indicate that the species is expected to occur in the SEA. Four specimens of the Santa Monica Mountains katydid were located at the type locality, just south and west of the SEA, during a focused survey conducted in early September 1991. Any proposed projects in the SEA should include focused nocturnal surveys for the Santa Monica Mountains katydid between July and early September.

Although the **monarch butterfly** (Danaus plexippus) has no official sensitivity status, the CNDDB lists winter roost sites in its database. The monarch is a migratory butterfly that winters along the coast from Mendocino County to Baja California. The sensitivity of the roost sites is due to the scarcity of conditions suitable for monarch roosting, including wind-protected groves of tall trees (eucalyptus, pines, cypress, etc.), nearby water sources, and flowering plants for nectar. Some riparian woodlands provide these elements, but many roost sites are located in cultivated plantings that are often in damaged by pruning. In addition, potential roosting sites are at risk of elimination by landscape redesign.

There are several recorded roost sites in the vicinity of the Tuna Canyon SEA (Santa Ynez Canyon and Pacific Palisades to the east), but none from Tuna or Pena Canyons. The riparian woodlands may provide suitable roost sites in winter. Future proposed projects in the SEA should include winter searches for occupied roost sites.

The **San Diego horned lizard** (Phrynosoma coronatum blainvillei) is a federal Category 2 Candidate for listing as endangered or threatened. The decline of this species, that was once common throughout coastal Southern California, is attributable to loss of habitat and over-collection for the pet and curio trades (McGurty 1980). The San Diego horned lizard prefers sandy soils in open areas within chaparral and coastal sage scrub. It is strongly associated with its preferred prey, harvester ants of the genus Pogonomyrmex. Often, the most obvious of the horned lizard's presence is observation of its distinctive scat near harvester ant mounds.

The CNDDB (1991) lists several records of the San Diego horned lizard for the region, particularly in Topanga Canyon to the immediate west and the Cold Creek Preserve to the northwest. There are discrepancies between the CNDDB records and the observations of DeLisle et al. (1986). The latter lists a different subspecies for the Santa Monica Mountains, namely the California horned lizard (P. c. frontale), and does not list the San Diego horned lizard at all. There is some debate between herpetologists as to whether or not the two are distinct subspecies, and there is much evidence of intermediate forms where the subspecies' ranges overlap, indicating interbreeding. For this report, it is assumed that the horned lizard in the SEA will be the San Diego subspecies.

Although no horned lizards were observed during recent surveys of the Tuna Canyon SEA, there is suitable habitat, especially in the coastal sage scrub areas in the lower portions of the canyons. Some harvester ant activity was noted along dirt roads and firebreaks. Due to the availability of prey and the presence of suitable habitat, the San Diego horned lizard is expected to occur in the Tuna Canyon SEA No. 10. Any projects proposed for this SEA should include focused surveys for this species during the warm months, April to October.

The **San Diego mountain kingsnake** (Lampropeltis zonata pulchra) is a federal Category 2 Candidate and a California Species of Special Concern. It occurs throughout the Sierra Nevada and scattered localities in the coast ranges across the entire length of the state, and in the San Bernardino, San Jacinto, and San Gabriel Mountains in Southern California. It ranges from near sea level to 8,000 feet in the vicinity of water sources near shrub or woodland habitats. Declines in populations of the San Diego mountain kingsnake may be attributed to overcollecting and habitat conversion.

DeLisle et al. (1986) list this species as moderately common in the Santa Monica Mountains. There are records from the DeLisle et al. study from Cold Canyon and Topanga Canyon, immediately adjacent to the Tuna Canyon SEA. The habitat and undisturbed nature of the SEA indicate that this species is expected to occur. Focused surveys during May should be conducted to determine the status of the San Diego mountain kingsnake in the Tuna Canyon SEA.

The Tuna Canyon SEA No. 10 is not expected to support any sensitive bird species during their breeding season. There are several that may use the area during migration in fall or spring, or as winter visitors from breeding grounds elsewhere within their range. While the SEA may not be

considered vital for the successful nesting of any sensitive bird species, the area's importance as wintering habitat or a migratory stop should not be overlooked.

Two raptors likely to be seen in the SEA in winter are the **sharp-shinned and Cooper's hawks** (Accipiter striatus and A. cooperii). Both of these birds are California Species of Special Concern. There are some breeding pairs of Cooper's hawks in Southern California, but the sharp-shinned hawk is known to nest mostly in the Sierra Nevada and the northern part of the state (Garrett and Dunn 1981; CWHRS 1990). Both of these species prefer, but are not restricted to, riparian habitat. They prey on small birds and occasionally rodents, amphibians, reptiles, and insects.

These species are expected to occur in the Tuna Canyon SEA No. 10 as winter visitors and transients during migration. Neither species is expected to nest in the SEA. The presence of upland habitats adjacent to the riparian woodlands increases the value of the SEA to the sharp-shinned and Cooper's hawks, and the area is likely to be important to these species during winter and in spring and fall migration. One Cooper's hawk was observed roosting in willows near the head of Pena Canyon in Spring 1991.

The **prairie falcon** (Falco mexicanus) is a California Species of Special Concern. It is a permanent resident primarily of desert areas, and it avoids higher elevations in the Sierra Nevada and northwestern California (CWHRS 1990). The prairie falcon is mainly associated with grasslands and agricultural fields where it forages for ground squirrels and other small mammals. It avoids dense forests and nests on open, rocky cliff faces.

The prairie falcon is not expected to nest in the SEA, although there are some apparently suitable nesting areas. Records for the prairie falcon in the Santa Monica Mountains are most likely winter visitors, as the prairie falcon exhibits some local migration from the desert to more coastal areas. The SEA is not expected to be important to this species, although occasional sightings are likely to occur.

The **yellow warbler** (Dendroica petechia) is a California Species of Special Concern. It is strictly a summer resident throughout most of its range in California, however, some individuals spend the winter in several localities along the southern California coast and Colorado River (Garrett and Dunn 1981). It breeds in riparian woodlands from sea level to 8,500 feet elevation. Breeding

pairs in the lowlands, especially along the coast, have declined dramatically in recent years most likely due to nest parasitism by brown-headed cowbirds and loss of habitat (CWHRS 1990).

The yellow warbler is expected to occur in the SEA in the riparian woodlands in Tuna and Pena Canyons. Nesting in the SEA is not expected because the yellow warbler prefers riparian woodlands with a dense, brushy understory and the topography of the riparian woodlands in the SEA is not conducive to development of this understory. The SEA may be important as wintering habitat or as a migratory rest stop.

The **greater mastiff bat** (Eumops perotis californicus) is a federal Category 2 Candidate and a California Species of Special Concern. Its range extends from Butte County south through the Southern California coastal mountains and portions of the southeast desert region. The mastiff bat favors rugged, rocky areas at low elevations in the coastal basins where there are suitable roost sites. Roost site characteristics for this species are very specific and must include crevices that open downward, are at least 5 cm wide, and are 30 cm deep (Burt and Grossenheider 1976).

The Tuna Canyon SEA No. 10 is within the range of the greater mastiff bat and contains extensive rocky cliffs that may have suitable roost sites. In addition, the riparian woodlands and extensive undisturbed habitat provide ample foraging opportunities for this species. The greater mastiff bat is expected to occur in the Tuna Canyon SEA and focused nocturnal surveys by a qualified chiropterist should be performed for any future proposed projects.

Townsend's big-eared bat (Plecotus townsendi) is a California Species of Special Concern. The subspecies (P. t. townsendi) is also a federal Category 2 Candidate, but it occurs in the humid north and central portions of the state and is not expected to occur in the SEA. The other subspecies in California (P. t. pallescens) is expected to occur in the SEA. It is found in a number of habitats, from deserts and grasslands to coniferous forests (CWHRS 1990). Favored roost sites are found in limestone caves, mine tunnels, and abandoned buildings.

The Townsend's big-eared bat is particularly susceptible to human disturbance, and will often abandon a roost site after one visit by humans (Ingles 1965). Recent surveys in California have revealed that the species has abandoned many former roost sites and its current status is uncertain (Williams 1986). There is apparently little human activity in the Tuna Canyon area, except for some unauthorized homeless encampments in the lower portion of Tuna Canyon. There may be

suitable roost sites in the extensive rocky areas in the SEA and it is likely that the Townsend's big-eared bat still occurs in the SEA. Focused nocturnal surveys to detect echlocating Townsend's big-eared bats, along with discreet roost site surveys should be conducted for projects proposed in the SEA.

WILDLIFE MOVEMENT

The issue of wildlife movement corridors, or habitat linkages, is of special importance to researchers in the Santa Monica Mountains (Edelman 1990). Most of this concern is for continuing connections between the Santa Monica, Santa Susana, and San Gabriel Mountains through the Simi Hills. Local movement is also of some importance to maintaining wildlife diversity in a given area. If animals are not able to travel between patches of suitable habitat, the likelihood of local extinctions increases. Fire or other disturbances may extirpate some species, especially large mammals, from a given area if there are no opportunities for finding or reaching refuge nearby. Also, the isolation of patches of habitat without connection to other open space promotes inbreeding among populations that, in turn, lowers fecundity and may ultimately result in population declines.

There are currently several connections within the Tuna Canyon SEA No. 10 that allow free animal movement throughout the SEA. Also, because of efforts to preserve the Santa Monica Mountains by the National Park Service, the Santa Monica Mountains Conservancy, and local interest groups, the region supports extensive, undisturbed natural habitat. It is likely that wildlife movement to and from the Tuna Canyon SEA and places such as Topanga Canyon, Cold Creek and the Cold Creek Preserve, and elsewhere in the mountains is uninhibited. This partially explains the diversity of plants and animals present in any given undisturbed place in the region.

V. DEVELOPMENT PRESSURE ANALYSIS

The Tuna Canyon SEA No. 10 is apparently little changed from its original inception in 1976 (England and Nelson 1976). This is most likely due to the rugged terrain, rocky soils, limited access roads, and geographic separation from the development pressure along the immediate coast. Some single-family homes have been built in the northern part of the SEA in the area of oak woodlands near the summit of Tuna Canyon Road, but these are far apart and have caused little

damage to the SEA, such as one might expect from large scale development efforts and dense housing tracts.

One of the larger land holders, PCH Partners, has provided the County with a conceptual land use pan for a tournament quality golf course and facilities in the area that would cause impacts to a portion of the upper limits of the SEA. According to preliminary concept plans submitted to the County Regional Planning Department, most of the golf course and facilities would be out of the SEA and would affect part of the uppermost areas of chaparral and oak woodlands in the SEA. Minor impacts to the drainages of Pena and Tuna Canyons are anticipated. Full assessment of this project is unavailable as plans were not finalized at the time of preparation of this report.

Smaller holdings are potentially subject to single-family residential development on large parcels. However, the topography of the SEA does not appear to be conducive to the level of intensive residential development that has occurred in Topanga Canyon to the east or along the immediate coastline.

The annexation of SEAs into newly incorporated cities within the county has led to removal of many of the original 62 SEAs identified by England and Nelson (1976). Following annexation, the SEAS are no longer afforded protection pursuant to the Los Angeles County General Plan. In addition, projects proposed within annexed SEAs are no longer subject to review by the Los Angeles County SEA Technical Advisory Committee. Annexation poses a major threat to the continued protection of the SEAs unless the City which annexes the SEA provides the same level of planning guidelines for the SEA to protect the designated resources. As more cities achieve incorporation, unique biological resources within the county could be impacted. The southern end of the SEA has been incorporated into the City of Malibu Beach and some development has occurred along Pacific Coast Highway. Suggestions for managing this situation are provided in the section on Management Measures.

VI. RECOMMENDATIONS FOR THE FUTURE MANAGEMENT OF SEA NO. 10

ORIGINAL INTENT OF SEA DESIGNATION AND CURRENT USES

According to England and Nelson (1976), the Tuna Canyon SEA No. 10 was designated to preserve the combination of vegetation, permanent water, and unobstructed opening to the coast provided by Tuna and Pena Canyons. Current uses are limited by the topography, well-protected entries, and lack of extensive access routes. There is evidence of past off-road vehicle use, but these unauthorized activities have been greatly reduced by the posting of signs and substantial barriers. There are also some single-family dwellings on large lots in the northern part of the SEA, and there are several homeless encampments in the lower portion of Tuna Canyon near Pacific Coast Highway. One portion of the northwestern section of the SEA south of Tuna Canyon Road contains a small ranch with associated grazing. Much of the native habitat in this area has been removed.

One aspect of the original condition of the SEA has been severely altered: the uninterrupted connections of Tuna and Pena Canyons to the ocean. The development of beachfront homes in Malibu Beach has completely severed this connection at Tuna Canyon and threatens the connection at Pena Canyon. This has not affected the flows in Tuna Canyon above Pacific Coast Highway, but any benefit the connection to the ocean would have for wildlife has been eliminated.

Unauthorized homeless encampments are currently developing in the lower portion of Tuna Canyon. These actions pose direct threats to the preservation of biotic resources within the SEA. Wildlife dependent on the perennial water source are expected to be disturbed. In addition, the lack of controls over water quality associated with such encampments will adversely affect the health of the vegetation and wildlife exposed to human waste and rubbish. The homeless encampments are not compatible with maintenance of the SEA.

Except for the ranch and the homeless encampments, the SEA is used in accordance with its original classification for low intensity recreational activity. In fact, it is likely that even low intensity recreational use is limited to those areas immediately accessible from Tuna Canyon Road, while Pena Canyon and much of the upland habitats are subject to entry restrictions by private landholders.

The Los Angeles County General Plan (1988) revises the compatible use definition. While it retains the essence of England and Nelson (1976), it goes further in stating that reasonable use of privately held lands within SEAs cannot be precluded without just compensation to the landowner. Instead, the General Plan recognizes that measures necessary to preserve and enhance SEAs will vary depending on the nature of the resource values present and the degree of threat implied by potentially incompatible development. In addition, the General Plan states that compatible uses may also include low density residential development, minor commercial uses serving local residents, public and semi-public uses essential to the maintenance of public health and safety, agricultural uses, and natural resources extraction (gas, oil, etc.).

The 1986 Malibu Local Coastal Program/Land Use Plan (LCP) was prepared in accordance with the California Coastal Act of 1976. It identifies the Tuna Canyon/Pena Canyon drainages as Environmentally Sensitive Habitat Areas (ESHAs) and significant watersheds that are subject to protection under the provisions of the LCP. Pending implementation of the LCP, developments in the LCP area are subject to the provisions of the Los Angeles County General Plan and the approval of the California Coastal Commission. The Malibu LCP is compatible with the uses proposed by England and Nelson (1976) and provides more specific resource dependent planning guidelines.

According to the LCP, potential land uses in ESHAs are limited to those activities that are resource dependent, such as nature observation, research and education, and passive recreation such as hiking and horseback riding. The LCP provides for residential uses that are set back a minimum of 100 feet, as consistent with appropriate erosion control/stream protection standards and LCP policies. Protection of Tuna and Pena Canyons under the LCP includes the following guidelines: vegetation removal and alteration is prohibited in ESHAs and watershed management areas except for recreation access and firebreaks as needed; access roads must be constructed to minimize grading and runoff; stream alteration is prohibited, and crossings must be by bridges above the streambed; a minimum 100 foot setback is required from existing riparian tree canopy; developments should be configured as closely as possible to existing roads to minimize construction of new roads; developments should be clustered to minimize the amount of land affected; and developments must be located at the periphery of watersheds to avoid as much as possible impacts to vegetation and alteration of drainage patterns. The significant watershed designation of the LCP provides for residential development of existing parcels of 20 acres or larger in accordance with recommended standards and policies and subject to review by the Environmental Review

Board. Existing parcels smaller than 20 acres in proximity to existing development, services, or the periphery of significant watersheds allows for residential development at existing parcel cuts in accordance with specified standards and policies and subject to review by the Environmental Review Board.

SUGGESTIONS FOR BOUNDARY ADJUSTMENTS

The current boundaries of the Tuna Canyon SEA No. 10 are not restricted by development or other considerations. It would be beneficial to the region as a whole to incorporate as much as possible of the remaining contiguous intact native vegetation within the Santa Monica Mountains into the SEA system. This would aid large-scale regional planning to protect natural habitat and wildlife movement corridors. Although there is room for expansion of the SEA, the original intent of the SEA is satisfied by the current boundaries.

The area described above in the northwestern portion of the SEA that supports a small ranch and cattle grazing should remain in the SEA. Because the habitat in this small part of the overall SEA is already disturbed, it may serve as a buffer for other activities outside of the SEA. Intensified development of the ranch, such as multiple dwelling developments, would be inconsistent with protection of the biological resources within the SEA.

COMPATIBLE MANAGEMENT MEASURES

The following section describes management measures that may avoid, minimize, or compensate for impacts to biological resources within the Tuna Canyon Sea No. 10. These measures are designed to preserve the quality of the existing SEA and ensure that future actions within the SEA do not significantly diminish the quality of the biological resources. These measures are not intended to be comprehensive, but provide a general approach that addresses the immediate needs of the Tuna Canyon SEA No. 10.

Measure to Minimize the Effects of Annexation of the SEA

Annexation of SEAs into newly incorporated cities provides an opportunity for development of the SEA inconsistent with the unique biological resources currently protected by the County. When possible, SEAs to be included in an incorporation should be eliminated from the sphere of

influence proposed. Otherwise, in the approval process for incorporation and decisions on boundaries for cities seeking incorporation, the county should undertake coordination with LAFCO to require that any SEAs within the proposed sphere of influence should remain, as much as possible, within the control of the County unless the city agrees that the SEA(s) affected will be afforded protection similar to that currently provided by the SEATAC review process. Upon annexation of an SEA into a city jurisdiction, the County could make provisions to provide planning guidance to the City staff consistent with continued protection of the SEA resource. Based on the County's expertise pursuant to the SEAs, the County should provide comments on City lead agency CEQA documents that affect previously designated County SEAs.

Measures to Protect Surface Water Flows

The following recommendations are designed to preserve water quality by establishing baseline water quality conditions, evaluating the effectiveness of certain management components, and evaluating the overall effect of urban runoff from the future development on the water quality of Tuna and Pena Canyons. The goal of the following measures is to reduce impacts associated with future development adjacent to and within the SEA that would affect downstream water quality and that could affect the health of the riparian woodlands within the canyon bottoms. Specifically, the measures would result in:

- controlling increased peak flows and volumes into Tuna and Pena Canyons
- minimizing nuisance flows into Tuna and Pena Canyons
- minimizing the velocity of flow into Tuna and Pena Canyons
- protecting stormwater, nuisance flow, and groundwater quality
- minimizing erosion and sedimentation
- minimizing the flow of trash and debris into Tuna Canyon

Water Quantity Control Measures

1. Prior to the issuance of any grading permits, the following drainage studies shall be submitted to and approved by the Public Works Department:

   a. A drainage study of the project including diversion and offsite areas that drain onto or through the development.

   b. When applicable, a drainage study that provides evidence that proposed drainage patterns will not overload existing storm drains.

c. Detailed drainage studies indicating how grading, in conjunction with the drainage conveyance systems including applicable swales, channels, street flows, catch basins, storm drains, and flood water retarding, will allow building pads to be safe from inundation from rainfall runoff that may be expected from all storms up to and including the theoretical 100-year flood.

d. Storm drain systems will be designed to locate discharge points to Tuna and Pena Canyons to minimize the disturbance of hillside terrain due to construction and to minimize any changes in natural stream bank erosion trends. Consideration will also be given to geology, slope stability, proximity to important vegetation, and land uses (both development and open space).

2. Prior to issuance of any grading permits, the applicant will design and receive approval by the Regional Planning Director for the following measure to reduce the velocity of stormwater runoff into the Tuna Canyon SEA:

a. The program will include aesthetic alternatives for energy dissipation. Desirable criteria will include intended function, size and scale, compatibility with surroundings, and proximity to important vegetation.

3. Prior to issuance of any grading permits, the applicant will design and receive approval by the Director of the Department of Public Works, for a program to mitigate increases in stormwater peak flow rates and volumes and nuisance flows into Tuna and Pena Canyons that will include the following:

a. Detention basins for the purpose of reducing quantity of post-development peak flows.

b. Designs for efficient landscaping practices in order to reduce the amount of effective impervious surfaces.

c. Alternatives for controlling nuisance flow from development into Tuna and Pena Canyons, such as alternative designs for transporting nuisance flows to the channel thalweg or infiltration of nuisance flow in conjunction with detention basin construction or water quality enhancement of nuisance flows in conjunction with basins.

Water Quality Control Measures

4. Prior to issuance of any grading permits, the applicant will design and receive approval by the Director of the Department of Public Works for the following measures to mitigate stormwater runoff quality into the Tuna Canyon SEA No. 10:

a. Where deemed necessary by the Los Angeles County Department of Public Works, a program shall be designed that will include a detention basin program to mitigate water quality impacts. The detention basin facility will be constructed by the applicant, and shall be ultimately dedicated to one, or a combination of, the following:

1. Community Facilities District
2. Homeowners Association
3. Los Angeles County
4. Other organizations formed for the purpose of managing and maintaining the detention facilities.

Prior to the issuance of any certificates of occupancy, improvements will be constructed in a manner meeting the approval of the Director of the Regional Planning Department.

b. A program for monitoring baseline water quality, and the effectiveness of the detention basin facilities will be developed. At a minimum, two water quality sampling locations will be designated. Prior to the outset of any monitoring program, the list of constituents will be reviewed and approved by the Regional Water Quality Control Board. The water quality monitoring program reports will be submitted to the Regional Water Quality Control Board and the Regional Planning Department.

c. The applicant will make provisions for feasible, community-specified water quality protection programs (e.g., car washes that drain directly into the sewer system, oil disposal centers, permeable "paving", and efficient landscaping practices) to provide opportunities to diminish common threats to local water quality prior to contaminated runoff reaching storm water outlets.

5. Prior to issuance of any grading permits, the applicant will design the following improvements and provide necessary dedications in a manner meeting the approval of the Director of Regional Planning:

a. All provisions for onsite surface drainage.

b. All necessary storm drain facilities extending to a satisfactory point of disposal for the proper control and disposal of storm runoff.

c. Where determined necessary by the Director of Regional Planning, the associated easements shall be dedicated to the appropriate agency of the County of Los Angeles.

Erosion And Sedimentation Control Measures

6. Prior to issuance of any grading permits, the applicant will submit to the Director of the Building and Safety Department for review and approval, an erosion control program that indicates that proper control of siltation, sedimentation, and other pollutants will be implemented as required in the Los Angeles County Grading Code.

a. During construction, siltation basins will be employed for use in reducing potential sedimentation. A siltation basin plan will be reviewed and approved by the Director of the Building and Safety Department or Director of the Department of Public Works.

b. Filter fences, trash racks, or other devices shall be provided at storm water outlets, as needed, to prevent trash and debris from entering the detention basin facility and Tuna Creek. The specifications and location of these devices shall be included in the management plans.

Measure to Minimize Development Pressures Within the SEA

In cases where one owner holds several parcels within the SEA, development density transfers may be a viable option. Parcels zoned for low densities may be allowed higher densities of development if such higher densities would not affect the quality of habitats in the SEA or affect wildlife movement, in exchange for donation of more sensitive parcels to the County or another resource conservation agency. A suitable ratio for such an exchange would be 2:1 -- one parcel of higher density development for two preserved parcels in mitigation. Such density transfers would likely be subject to review by county supervisors.

Measures to Provide for Long-term Preservation of Tuna Canyon SEA No. 10

One of the options for mitigation of impacts to biological resources from development is offsite preservation of habitat. The regional loss of open space, that is often identified as an unavoidable adverse impact for large developments, has few other options if the project is to proceed as planned. There are opportunities to use the Tuna Canyon SEA as a mitigation bank for projects elsewhere in the county. Offsite mitigation efforts that could be performed within the SEA include restoration of disturbed areas, land purchase, and preservation.

Measures to Provide for Riparian Preservation

Specific steps to preserve the quality of the Tuna Canyon SEA No. 10 should also be implemented on a project by project basis. Typical measures that could be included in mitigation for any future developments within the SEA include: (1) contribution to a restoration program; (2) creation (restoration) of buffer areas to minimize siltation and turbidity during times of high water flows, including preservation or revegetation of hillsides, and restoration of natural drainage patterns that have been disrupted; (3) conscientious grading practices that restore natural slopes, avoid filling canyon bottoms, and minimize erosion; (5) landscaping with native, regionally-occurring plant species that are not invasive into riparian habitat; (6) limitation of human activity within Tuna and Pena Canyons and the rest of the SEA, such as off-road vehicle use, that may alter streambeds,

destroy native vegetation, and increase the frequency of fire; and (7) contribution to obtaining other parcels within the SEA for preservation.

Measures to Preserve Oak Woodlands/Savannahs

The Los Angeles County Oak Tree Preservation Ordinance was enacted to prevent the loss of native oaks of the genus Quercus. The preservation of these trees is often mitigated through replacement of trees to be lost to a development at a ratio greater than 1:1. While this replacement may compensate for the loss of individual trees, in most cases it does not replace the valuable habitat that is removed. Avoidance of impacts to the oak woodlands should be the preferred measure to preserve this habitat. Any development that will remove large areas of oak woodlands should be redesigned or restricted to avoid mature oak woodlands and understory resources. For projects that cannot avoid impacts to oak woodlands, adequate compensation should include replacement of trees as required under the oak tree ordinance and contribution to preservation of suitable habitat elsewhere in the Tuna Canyon SEA No. 10. Any proposed project that could potentially affect mature oak trees must prepare an oak tree report in accordance with Los Angeles County Code, Title 22, Sections 22.56.2050 through 22.56.2140.

The following techniques to stimulate the natural regeneration of oak seedlings on the site and encourage the reestablishment of native grasses should be implemented:

- Once the native grasses are established they will require periodic, intensive maintenance to remove the accumulated thatch. Thatch buildup reduces water infiltration and tends to constrict the growth of native grasses. Thatch buildup can be eliminated with the use of a dethatching device or rake.

- Soil inoculation. Beneficial fungi help oaks survive times of water stress and allow uptake of nutrients in poor soils. These fungi attach to the roots of host species, but do not tend to survive in areas of nonhost species such as annual grasslands. Treatment would consist of inoculating oak regeneration sites with commercially available fungi and other beneficial organisms, and it is strongly recommended for areas where soils are poor and the population of nonhost species is high.

- Natural oak regeneration should be supplemented with the planting of germinated acorns grown from oaks collected onsite. Areas particularly favorable for planting include north-facing slopes, deep soils, swales, or other areas with subsurface water. Planting locations would be augured to enhance root development, and plantings should be temporarily caged to prevent rodent

damage. Site surveys would be necessary to determine specific planting number and locations.

- Deadwood/leaf litter removal. Deadwood should not be removed, except for fire management purposes, as logs and branches provide valuable microhabitats for invertebrates, reptiles, small mammals, and birds. In addition, the decomposition of deadwood and leaf litter is essential for the replenishment of the soil's nutrients and minerals.

- Pruning. Pruning or clearing of native trees and shrubs should be avoided, except near residential areas for fuel modification purposes, as dense understory and canopy provide necessary wildlife habitat.

- Fertilizers/Pesticides. Neither fertilizers nor pesticides should be used in open space areas. Fertilizers are unnecessary for the successful growth of native species and promote excessive weed growth. Pesticides are undesirable as they can have long-term adverse effects on the ecosystem.

- Weed Control. Weed control within the natural open space areas should be limited. For the most part, the existing oak understory is dominated by introduced grasses along with many annual native species. These annual grasses are providing erosion control and should not be removed. Persistent invasive species, such as thistles and mustard should be selectively eliminated through the use of such weed control methods as mechanical clearing, mowing, and the use of nonresidual herbicides.

  The primary method of weed eradication that should be used within the natural open space area is mowing. Mowing should be performed twice yearly, in early spring and summer, for fire control, weed control, and to stimulate the growth of native bunchgrasses.

  In areas where there are problem weeds, the area should first be cleared of existing non-native species during the early spring, irrigated frequently so as to germinate weed seeds, then mowed in late spring/early summer before the seeds mature. All mechanical weed removal activities should take place 5 feet outside of the dripline of any oak tree so as to avoid damage to existing oaks and oak seedlings. Any weed removal within 5 feet of the dripline of any oak should be done by hand.

  Herbicides could be used in the existing habitats only if nonchemical means of weed removal are not successful and control is considered to be of greater benefit than leaving the site as is. Selective spraying with appropriate, nonresidual herbicides should be conducted by a weed control specialist under direction of a qualified biologist.

Fuel Modification Program

The fuel modification plans for areas in and adjacent to the Tuna canyon SEA No. 10 would be developed to integrate measures for the protection of structures from fire hazard conditions with the use and management of native plant species and compatible drought-tolerant plants for fire protection. The use of nonvolatile native species and compatible drought-tolerant species would also serve as a natural buffer and transition between residential areas and natural open space. The fuel modification program should include a transition area between a development and open space. Typically, the area is split into three zones that vary in the degree of thinning, removal, revegetation, and irrigation.

General guidelines that apply to all three zones include: (1) the retention of nonvolatile native plant species within natural open space areas, including oaks; and (2) the replacement of volatile native plant species with nonvolatile native and drought-tolerant plant species within fuel modification areas. The actual widths of the three zones within the fuel modification area would vary according to slope conditions, degree of irrigation, and existing vegetation.

Additionally, development should strongly encourage the use of nonvolatile drought-tolerant and native plant species within development areas and strongly discourage the use of invasive, non-native plant materials such as pampas grass (Cortaderia sellowiana), fountain grass (Pennisetum spp.), ice plant (Delosperma spp.), periwinkle (Vinca major), trailing lantana (Lantana camara), German ivy (Senecio mikaniodes), Spanish broom (Spartium junceum), French broom (Genista monspessulanus), blue gum (Eucalyptus globulus), Brazilian pepper tree (Schinus terebenthifolius), California pepper tree (Schinus molle), and tree of heaven (Ailanthus altissima) in areas outside the development edge of rural residential areas.

Potential guidelines pertaining to each of the three fuel modification zones are presented below:

- **Zone 1.** The first fuel modification zone is normally used to establish the maximum fire prevention area that will receive the most extensive thinning and removal of flammable vegetation. This area is immediately adjacent to the development and can be planted in fire-retardant low groundcover plants and trees that receive regular irrigation. Low volume irrigation systems can be used in order to prevent saturated conditions in natural areas downslope. Jute netting may be required on the slopes in this zone to prevent erosion until the plants are established.

- **Zone 2.** This zone is often within the areas disturbed by project grading but may extend into natural open space areas. The volume of vegetation is often greatly reduced and low fuel volume native plants will be established by seed or from containers. This zone normally receives periodic thinning to maintain low fuel levels. In addition, invasive grasses are cleared. Existing oaks within this zone will be retained, although some thinning and dead wood removal will be necessary to reduce fuel load.

- **Zone 3.** Native vegetation furthest away from development should be selectively thinned, removing highly flammable plant species such as California sagebrush, California buckwheat, sages, and deadwood so that the structure of the vegetation is open but the soil is not exposed to erosion. If large volumes of vegetation are removed, the area would normally be replanted with low fuel volume native plants and compatible drought-tolerant species that would stabilize the soil (i.e., toyon, laurel sumac, oak).

Management Measures for the Urban/Natural Interface

The following guidelines pertain to the transition areas between the SEA and residential and other development sites:

- **Buffer Zone.** Successful integration of wildlife habitat into development depends on proper buffering at the interface of these two areas. Development often results in an edge condition where residential lots are located adjacent to areas of natural open space. A conceptual buffer plan using native plant species has been developed for the management of this edge condition. This buffer will limit potential impacts to the natural areas by screening development from wildlife, capturing excess runoff from landscape irrigation that could potentially injure sensitive plants, and providing an edge along residential lots that is aesthetically pleasing while providing many plant species that are valuable to wildlife. This edge should be designed so that it may be integrated into a fuel modification plan for the development that meets all of the requirements of the Los Angeles County Fire Department.

  Native plants recommended for this buffer include more mesic species such as toyon (Heteromeles arbutifolia), elderberry (Sambucus mexicana), California lilac (Ceanothus spp.), squaw bush (Rhus trilobata), coffeeberry (Rhamnus californica), and coyote bush (Baccharis pilularis).

  Additional native plant species that are low growing and of low fuel volume, and would not impede views into natural areas, could also be used. These include golden yarrow (Eriophyllum confertiflorum), California poppy (Eschscholzia californica), monkey flower (Diplacus spp.), penstemon (Penstemon spp.), California fuchsia (Epilobium spp.), deerweed (Lotus scoparius), wooly blue curls (Trichostema lanatum), and annual lupine (Lupinus spp.). This zone should be periodically thinned to maintain low fuel levels, as well as cleared of invasive grasses.

- **Signage**. Signs should be located in appropriate areas so as to discourage human intrusion into the SEA.

- **Night Lighting**. Night lights near residential areas should be directed away from the SEA so as not to disrupt nocturnal wildlife activity.

- **Fencing**. Fencing should be used where residential lots abut natural areas to discourage human intrusion into the SEA.

Measures to Preserve Wildlife Movement

A review of the aerial photograph of the Tuna Canyon SEA No. 10 and regional maps of the Santa Monica Mountains shows that the SEA may be important as a source site for wildlife (providing colonizing animals for other areas) and as a refuge from disturbance such as fire. The SEA contains the variety of topography, vegetation, and permanent water necessary to promote wildlife survival and movement through the area. The maintenance of biological diversity in the Santa Monica Mountains is somewhat dependent upon this type of system. Loss of hillside vegetation to development would seriously threaten wildlife movement in the SEA. Piecemeal developments that alter the habitat or increase opportunities into the SEA should be avoided. Other management measures outlined in this section, such as buffer zone maintenance, will aid the maintenance of the wildlife movement corridor system within the SEA, and between the SEA and other natural areas.

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APPENDIX A

LIST OF PARCEL OWNERS WITHIN TUNA CANYON SIGNIFICANT ECOLOGICAL AREA NO. 10

1-1 4448-002-031 L.A. ATHLETIC CLUB 431 W. 7TH STREET LOS ANGELES, CA 90014

2-1 4448-005-020 LEWIS B. MARVIN III P.O. BOX 859 TOPANGA, CA 90290

3-1 4448-005-023 CURT & J.P.S. VENTURE II MALIBU INC.-THE HENDRIX CO. 900 3RD AVE. 27TH FLR. NEW YORK, NY 10022

3-2 4448-005-024 CURT & J.P.S. VENTURE II MALIBU INC.-THE HENDRIX CO. 900 3RD AVE. 27TH FLR. NEW YORK, NY 10022

3-3 4448-005-025 CURT & J.P.S. VENTURE II MALIBU INC.-THE HENDRIX CO. 900 3RD AVE. 27TH FLR. NEW YORK, NY 10022

3-4 4448-005-026 CURT & J.P.S. VENTURE II MALIBU INC.-THE HENDRIX CO. 900 3RD AVE. 27TH FLR. NEW YORK, NY 10022

3-5 4448-005-027 CURT & J.P.S. VENTURE II MALIBU INC.-THE HENDRIX CO. 900 3RD AVE. 27TH FLR. NEW YORK, NY 10022

4-1 4448-005-029 OCEAN HILLS ESTATES INC. 22647 VENTURA BLVD. #264 WOODLAND HILLS, CA 91364

3-6 4448-005-030 CURT & J.P.S. VENTURE II MALIBU INC.-THE HENDRIX CO. 900 3RD AVE. 27TH FLR. NEW YORK, NY 10022

3-7 4448-005-031 CURT & J.P.S. VENTURE II MALIBU INC.-THE HENDRIX CO. 900 3RD AVE. 27TH FLR. NEW YORK, NY 10022

3-8 4448-005-032 CURT & J.P.S. VENTURE II MALIBU INC.-THE HENDRIX CO. 900 3RD AVE. 27TH FLR. NEW YORK, NY 10022

5-1 4448-005-033 19800 P.C.H. PARTNERS SANDLER ROLNICK & MORSE 10000 SANTA MONICA BLVD. #320 LOS ANGELES, CA 90067

5-2 4448-005-034 19800 P.C.H. PARTNERS SANDLER ROLNICK & MORSE 10000 SANTA MONICA BLVD. #320 LOS ANGELES, CA 90067

6-1 4448-005-901 COUNTY OF LOS ANGELES WATERWORKS,DIST. NO. 29 550 S. VERMONT AVE. LOS ANGELES, CA 90012

2-2 4448-006-023 LEWIS B. MARVIN III P.O. BOX 859 TOPANGA, CA 90290

7-1 4448-006-024 SOUTHERN CAL. INSTITUTE OF ARCHITECTURE 1800 BERKELEY ST. SANTA MONICA, CA 90404

8-1 4448-006-025 EVERETT BROWN 555 GRIFFITH LAS VEGAS, NV 89104

9-1 4448-006-029 MOUNTAINS RESTORATION TR. 24955 PACIFIC COAST HWY. #201 MALIBU, CA 90265

7-2 4448-006-032 SOUTHERN CAL. INSTITUTE OF ARCHITETURE-c/o: RAY KAPPE 1800 BERKELEY ST. SANTA MONICA, CA 90404

2-3 4448-006-033 LEWIS B. MARVIN III P.O. BOX 859 TOPANGA, CA 90290

10-1 4448-006-035 KENNETH E. HEALING 11711 DARLING AVE. #9 LOS ANGELES, CA 90049

11-1 4448-006-036 PHILLIP H. KOEFFLER 13141 RIVERS ROAD- LOS ANGELES, CA 90049

12-1 4448-006-037 PANGOLIN CORP. P.O. BOX 4190 MALIBU, CA 90265

13-1 4448-006-038 NORMA LIPMAN 4824 AMALFI OXNARD, CA 93030

14-1 4448-006-900-904 U.S. GOVERNMENT c/o: GNRL. SVCS. ADM. 300 N. LOS ANGELES ST. LOS ANGELES, CA 90012

15-1 4448-007-069 DAVID J. MENKEN P.O. BOX 1678 TOPANGA, CA 90290

16-1 4448-007-070 DAVID GREENWALT 2630 TUNA CANYON RD. TOPANGA, CA 90290

17-1 4448-007-071 FRANK LEWIS 21225 COLINA DR. TOPANGA, CA 90290

18-1 4448-007-072 SALLY T. PARKER 3200 TUNA CANYON RD. TOPANGA, CA 90290

19-1 4448-007-075 PATRICIA SCHLENER 45411 90TH ST. W. LANCASTER, CA 93536

20-1 4448-007-076 ALFRED W. BROSTOWICZ 3352 TUNA CANYON RD. TOPANGA, CA 90290

21-1 4448-007-079 MICHAEL S. DELLINGER 869 E. FOOTHILL UPLAND, CA 91785

22-1 4448-007-080 DENNIS E. SKALMAN 128 MERRIMAC DR. #A ANAHEIM, CA 92807

23-1 4448-007-081 JOHN S. LYONS 4633 W. 152ND ST. LAWNDALE, CA 90260

24-1 4448-007-082 EDWARD C. BARTH P.O. BOX 2514 LANCASTER, CA 93534

24-2 4448-007-083 EDWARD C. BARTH P.O. BOX 2514 LANCASTER, CA 93534

25-1 4448-007-084 TROLLOPE F. ANDERSON 2218 MARGARET CT. REDONDO BEACH, CA 90278

23-2 4448-007-085 JOHN S. LYONS 4633 W. 152ND ST. LAWNDALE, CA 90260

26-1 4448-007-086 TENNY RAMING 918 GLENHAVEN DR. PACIFIC PALISADES, CA 90272

27-1 4448-007-087 MARY L. FIKE P.O. BOX 9078 231 VAN NUYS, CA 91401

28-1 4448-007-088 GERALD C. SAYLES 2325 W. AVE. K-10 LANCASTER, CA 93536

28-2 4448-007-089 GERALD C. SAYLES 2325 W. AVE. K-10 LANCASTER, CA 93536

29-1 4448-007-090 VIRGINIA A. STAY 5200 IRVINE BLVD. #32 IRVINE, CA 92720

30-1 4448-007-091 ROBERT H. HENTGES 3164 CURTS AVE. LOS ANGELES, CA 90034

31-1 4448-007-092 MARK JASON 20384 SEABOARD RD. MALIBU, CA 90265

32-1 4448-007-093 GEORGE B. BLAIS 13900 PANAY WAY #R-215 MARINA DEL REY, CA 90291

33-1 4448-007-094 JOHN P. SAMPSON JR. c/o: EDWARD C. BARTH P.O. BOX 2514 LANCASTER, CA 93536

32-2 4448-007-095 GEORGE B. BLAIS 13900 PANWAY WAY #R-215 MARINA DEL REY, CA 90291

34-1 4448-007-096 CHARLES A. ESSEGIAN JR. 16133 VENTURA BLVD. #700 ENCINO, CA 91436

35-1 4448-007-097 ELLEN VANBUSKIRK c/o: MORTON C. DEVOR 11150 OLYMPIC BLVD. #1150 LOS ANGELES, CA 90064

36-1 4448-007-098 HELEN C. HAYDEN c/o: MORTON C. DEVOR 11150 OLYMPIC BLVD. #1150 LOS ANGELES, CA 90064

37-1 4448-007-099 WALTER H. VANBUSKIRK JR. c/o: MORTON C. DEVOR 11150 OLYMPIC BLVD. #1150 LOS ANGELES, CA 90064

38-1 4448-007-100 CLIFFORD HAYDEN c/o: MORTON C. DEVOR 11150 OLYMPIC BLVD. #1150 LOS ANGELES, CA 90064

39-1 4448-007-101 EUGENIE P. BURKNER 6351 ALTA VISTA RIDGE RD. SIMI VALLEY, CA 93063

40-1 4448-007-102 THOMAS EGIDI 3200 TUNA CANYON RD. TOPANGA, CA 90290

41-1 4448-007-103 PAUL R. ST. JOHN 1525 N. CRESCENT HEIGHTS LOS ANGELES, CA 90046

18-2 4448-007-104 SALLY T. PARKER 3200 TUNA CANYON RD. TOPANGA, CA 90290

18-3 4448-007-105 SALLY T. PARKER 3200 TUNA CANYON RD. TOPANGA, CA 90290

42-1 4448-008-035 WILLIAM J. PEASE 2566 TUNA CANYON RD. TOPANGA, CA 90290

43-1 4448-008-036 ROY V. CATON 3760 WILLOWCREST AVE. N. HOLLYWOOD, CA 91604

44-1 4448-008-038 EARL CURTIS 2424 TUNA CANYON RD. TOPANGA, CA 90290

45-1 4448-008-041 ARNOLD P. COSTELL 2480 TUNA CANYON RD. TOPANGA, CA 90290

46-1 4448-008-042 PATRICIA SCHLENER 45411 90TH ST. W. LANCASTER, CA 93536

47-1 4448-009-018 ROSSCAPE INC. 23901 CALABASAS RD. #1074 CALABASAS, CA 91302

48-1 4448-009-019 KEVIN J. DRISCOLL 2400 TUNA CANYON RD. TOPANGA, CA 90290

49-1 4448-009-020 THEODORE J. OLDEMANS P.O. BOX 430 SANTA MONICA, CA 90404

49-2 4448-009-021 THEODORE J. OLDEMANS P.O. BOX 430 SANTA MONICA, CA 90404

49-3 4448-009-022 THEODORE J. OLDEMANS P.O. BOX 430 SANTA MONICA, CA 90404

50-1 4448-009-023 STEVEN M. MEYER 513 MICHIGAN SOUTH BEND, IN 46601

51-1 4448-009-024 BRUCE P. ANDREWS 1148 GEORGE ST. SAN LUIS OBISPO, CA 93401

52-1 4448-009-026 WILLIAM HASSEL P.O. BOX 1421 TOPANGA, CA 90290

53-1 4448-009-027 HOWARD R. BURNS 10598 HOLMAN AVE. LOS ANGELES, CA 90024

54-1 4448-009-028 GARY V. LANCIONE' 1634 RAYMOND HILL RD. #4 SOUTH PASADENA, CA 91030

55-1 4448-009-030 JACK S. CHERNIKOFF 2326 TUNA CANYON RD. TOPANGA, CA 90290

56-1 4448-009-900 COUNTY OF LOS ANGELES 320 W. TEMPLE STREET LOS ANGELES, CA 90012

57-1 4448-011-035 FREDERICK V. WILLIS 37 RANCHVIEW ROLLING HILLS EST.,CA 90274

58-1 4448-011-036 WARREN JENSEN 1528 CLOVERFIELD BLVD. #C SANTA MONICA, CA 90404

59-1 4448-011-037 ROBERT JONES 2535 S. CHARD AVE. TOPANGA, CA 90290

60-1 4448-011-038 JAMES J. GILLOGLY 2520 S. CHARD AVE. TOPANGA, CA 90290

61-1 4448-011-040 CATHERINE GEER 20373 SKYHAWK LANE TOPANGA, CA 90290

62-1 4448-011-041 JOAN M. MARINER 3340 23RD STREET SAN FRANCISCO, CA 94110

63-1 4448-011-042 CHESTER P. SKOWRON 2047 WILSHIRE BLVD. SANTA MONICA, CA 90403

64-1 4448-011-043 JIM GOYJER P.O. BOX 156 MALIBU, CA 90265

65-1 4448-011-044 BERNARDINO ZANINI 20106 OBSERVATION DR. TOPANGA, CA 90290

66-1 4448-011-049 THOMAS A. GATES 1026 TYLER ST. GLENDALE, CA 91205

3-9 4449-009-001 CURT & J.P.S. VENTURE II MALIBU INC.-THE HENDRIX CO. 900 3RD AVE. 27TH FLR. NEW YORK, NY 10022

3-10 4449-009-002 CURT & J.P.S. VENTURE II MALIBU INC.-THE HENDRIX CO. 900 3RD AVE. 27TH FLR. NEW YORK, NY 10022

3-11 4449-009-003 CURT & J.P.S. VENTURE II MALIBU INC.-THE HENDRIX CO. 900 3RD AVE. 27TH FLR. NEW YORK, NY 10022

3-12 4449-009-004 CURT & J.P.S. VENTURE II MALIBU INC.-THE HENDRIX CO. 900 3RD AVE. 27TH FLR. NEW YORK, NY 10022

4-2 4449-009-005 OCEAN HILLS ESTATES INC. 22647 VENTURA BLVD. #264 WOODLAND HILLS, CA 91364

67-1 4449-010-001 AMIR MANOCHERIAN 475 PARK AVE. S. NEW YORK, NY 10016

67-2 4449-010-002 AMIR MANOCHERIAN 475 PARK AVE. S. NEW YORK, NY 10016

67-3 4449-010-003 AMIR MANOCHERIAN 475 PARK AVE. S. NEW YORK, NY 10016

67-4 4449-010-004 AMIR MANOCHERIAN 475 PARK AVE. S. NEW YORK, NY 10016

67-5 4449-010-007 AMIR MANOCHERIAN 475 PARK AVE. S. NEW YORK, NY 10016

67-6 4449-010-008 AMIR MANOCHERIAN 475 PARK AVE. S. NEW YORK, NY 10016

67-7 4449-010-009 AMIR MANOCHERIAN 475 PARK AVE. S. NEW YORK, NY 10016

68-1 4449-010-010 DOREEN FIELD 19355 PACIFIC COAST HWY. MALIBU, CA 90265

69-1 4449-010-011 DANIEL A. SEGAL 19433 PACIFIC COAST HWY. MALIBU, CA 90265

5-3 4448-030-018 19800 P.C.H. PARTNERS SANDLER ROLNICK & MORSE 10000 SANTA MONICA BLVD. #320 LOS ANGELES, CA 90067

70-1 4448-030-019 OLIVIA NEWTON-JOHN ONJ-TRUST/ATTN:JOEL JACKSON 10880 WILSHIRE BLVD. #2110 LOS ANGELES, CA 90024

9-4 4448-030-021 19800 P.C.H. PARTNERS SANDLER ROLNICK & MORSE 10000 SANTA MONICA BLVD. #320 LOS ANGELES, CA 90067

6-2 4448-030-901 COUNTY OF LOS ANGELES WATERWORKS-DIST. NO. 29 550 S. VERMONT AVENUE LOS ANGELES, CA 90012

LEGEND:

4448-011-063 does not exist.
4448-011-064 does not exist.
4448-011-068 does not exist.
4448-011-069 does not exist.
4448-03-22,24 do not exist, arb numbers changed.

1-2 4448-004-007 L.A. ATHLETIC CLUB, 431 WEST 7TH STREET, LOS ANGELES, CA 90014

1-3 4448-004-008 L.A. ATHLETIC CLUB, 431 WEST 7TH STREET, LOS ANGELES, CA 90014

71-1 4448-007-053 SAARINEN, ERIC AND TONI TRS SAARINEN FAMILY TRUST

71-2 4448-007-054 SAARINEN, ERIC AND TONI TRS SAARINEN FAMILY TRUST

71-3 4448-007-055 SAARINEN, ERIC AND TONI TRS SAARINEN FAMILY TRUST

71-4 4448-007-056 SAARINEN, ERIC AND TONI TRS SAARINEN FAMILY TRUST

72-1 4448-007-058 ELFMAN DANIEL AND GERI, 19668 GRANDVIEW TOPANGA, CA 90290

73-1 4448-007-059 DOLLASE, WAYNE A. AND ELENOR, 670 SWARTHMORE AVENUE, PACIFIC PALISADES, CA 90272

72-2 4448-007-060 ELFMAN DANIEL AND GERI, 19668 GRANDVIEW TOPANGA, CA 90290

74-1 4448-007-061 CHRISTMAS, DOUGLAS J., 5514 WILSHIRE BLVD, LOS ANGELES, CA 90036

75-1 4448-007-062 SCHNITZLER, PETER, 2913 HIGHLAND, SANTA MONICA, CA 90405

76-1 4448-007-064 HEICK, SUSAN, 1406 N. BENTON WAY, LOS ANGELES, CA 90026

77-1 4448-007-064 WALKER, NICHOLAS P. AND WENDY S., NEAL LEVEN AND CO., 9595 WILSHIRE BLVD, #505, BEVERLY HILLS, CA 90212

78-1 4448-007-067 PITMAN, DUNCAN L. AND JOANNE G. TRS DL AND JG PITMA, 300 GRANLIBAKKEN, TAHOE CITY, CA 95730

79-1 4448-007-068 BOROFSKY, JONATHAN C., 57 MARKET STREET, VENICE, CA 90291

82-1 4448-007-077 SEMERAU, GEORGE P. AND JODY B., 3346 TUNA CANYON, TOPANGA, CA 90290

80-2 4448-007-078 SEMERAU, GEORGE P. AND JODY B., 3346 TUNA CANYON, TOPANGA, CA 90290

78-2 4448-007-106 PITMAN, DUNCAN L., CO. TR PITMAN FAMILY TRUST, 300 GRANLIBAKKEN, TAHOE CITY, CA 95730

81-1 4448-007-107 LORING, RICHARD AND GABEL PATRICIA, 4052 DEL REY AVENUE, #104, VENICE, CA 90292

82-1 4448-007-108 CORISH, DAVID M. 3007 S. TUNA CANYON ROAD, TOPANGA, CA 90290

83-1 4448-022-004 WIRTH, LARRY AND BARBARA, 1535 FERNWOOD PACIFIC DRIVE, TOPANGA, CA 90290

84-1 4448-022-005 RICHARDSON, H.F., 1040 COLUMBIA RIDGE DR., VANCOUVER, WA 98664

85-1 4448-022-006 GOLDSTEIN, WAYNE P. AND SHARON Z., 21375 SADDLEPEAK ROAD, TOPANGA, CA 90290

86-1 4448-022-007 DEVINE, ANTHONY J., 21206 SADDLEPEAK ROAD, TOPANGA, CA 90290

87-1 4448-022-008 BOLIVAR, LUIS R. TR LUIS R. BOLIVAR TRUST AND ORR, RALIN L., 2717 W. 143 PL, GARDENA, CA 90249

88-1 4448-022-009 FLINKMAN, STAN AND RUTH TRS STAN AND RUTH FLINK 3005 MAIN STREET #500, SANTA MONICA, CA 90405

88-2 4448-022-010 FLINKMAN, STAN AND RUTH TRS STAN AND RUTH FLINK 3005 MAIN STREET #500, SANTA MONICA, CA 90405

87-2 4448-022-011 BOLIVAR LUIS R. TR LUIS R. BOLIVAR TRUST AND ORR RALPH L, 2717 W. 143 PL, GARDENA, CA 90249

88-3 4448-022-012 FLINKMAN, STAN AND RUTH TRS STAN AND RUTH FLINK 3005 MAIN STREET #500, SANTA MONICA, CA 90405

89-1 4448-022-013 CARR CYRIL L AND ANN R TRS CARR TRUST 1733 N REFUGIO RD SANTA YNEZ CA 93460

89-2 4448-022-014 CARR CYRIL L AND ANN R TRS CARR TRUST 1733 N REFUGIO RD SANTA YNEZ CA 93460

6-3 4448-022-900 LA COUNTY LOT COM AT INTERSECTION OF N AND S C/L OF SEC 24 T 1S R 24 W WITH NE LINE OF SADDLE PEAK RD

90-1 4448-010-0009 LAGARDERE CLAUDE AND MARY E 2039 TUNA CANYON RD TOPANGA CA 90290

91-1 4448-010-011 SCHNEIDER ADRIAN B AND SHELLY B 2233 TUNA CANYON ROAD TOPANGA CA 90290

92-1 4448-010-012 kYLE NANSE R 2175 TUNA CANYON ROAD TOPANGA CA 90290

93-1 4448-101-013 MAKSHANOFF ANDREA 2041 TUNA CANYON RD TOPANGA CA 90290

94-1 4448-010-014 VEREBES ANTHONY P 2025 TUNA CYN TOPANGA CA 90290

95-1 4448-010-015 KLINE JEFFREY B AN JUDITH B P O BOX 1059 TOPANGA CA

96-1 4448-109-012 QUINONES FRANK T AND IRENE 21011 SADDLE PEAK RD TOPANGA CA 90290

97-1 4448-019-013 REBANE GEORGE J AND JO ANN TRS REBANE TRUST 21135 SADDLE PEAK RD TOPANGA CA 90290

98-1 4448-019-14 BAILEY BRUCE R AND ODETTE 4600 GLENCOE #1 MARINA DEL REY 90029

99-1 4448-019-015 BEER MICHAEL AND CONRAD RANDI 21629 SADDLEPEAK RD TOPANGA CA 90290

100-1 4448-019-016 FINLEY HADIA M 2410 MINARD RD TOPANGA CA 90290

101-1 4448-019-017 WEAR LISA H TR WEAR TRUST 2440 MINARD RD TOPANGA RD 90290

101-2 4448-019-018 WEAR LISA H TR WEAR TRUST AND WALTERS SYLVIA 2440 MINARD RD TOPANGA CANYON CA 90290

102-1 4448-019-019 ANDERSON KURT AND MARTHA 2440 MINARD RD TOPANGA CA 90291

103-1 4448-019-020 FREISTUHLER BARBARA ET AL SCHMITT MARTIN 21051 SADDLE PEAK RD TOPANGA MALIBU CA 90290

104-1 4448-019021 CHRITTON MARTHA G 8 VENTURE LN LEVITTOWN PA 19054

105-1 4448-019-022 GILMAN STEWART B 10365 HOLMAN AVE LOS ANGELES CA 90024,

106-1 4448-019-023 GATES KENNETH W AND CHARLENE L 4547 W 137 ST HAWTHORNE CA 90250

107-1 4448-019-025 WILBUR MARK S P O BOX 1186 MALIBU CA

107-2 4448-019-027 WILBUR MARK S P O BOX 1186 MALIBU CA

107.5 4448-019-028 WILBUR MARK S P O BOX 1186 MALIBU CA

108-1 4448-019-029 CORRY STEVEN ET AL 2718 2 ST SANTA MONICA CA 90405

109-1 4448-019-030 BARNETT JAY AND DEBRA 1875 TUNA CANYON RD TOPANGA CA 90290

107-4 4448-019-031 WILBUR MARK S P O BOX 1186 MALIBU CA

107-5 4448-019-032 WILBUR MARK S P O BOX 1186 MALIBU CA

94-2 4448-019-033 VERBES ANTHONY P 2025 TUNA CANYON TOPANGA CA 90290

110-1 4448-019-036 BEHL DOUGLAS 2341 TUNA CANYON RD TOPANGA A 90290

111-1 4448-019-037 BLANCA VIOLA 2329 TUNA CANYON RD TOPANGA CA 90290

112-1 4448-019-038 CONTIS DENIS AND JENIFER L 21530 SADDLEPEAK RD TOPANGA CA 90290

105-2 4448-019-039 GILMAN STEWART B 10365 HOLMAN AVE LOS ANGELES CA 90024

106-2 4448-019-040 BIENENFELD DANIEL AND LINDA 2351 TUNA CANYON RD TOPANGA CA 90290

105-3 4448-019-041 GILMAN STEWART B 10365 HOLMAN AVE LOS ANGELES CA 90024

5-4 4449-011-001 19800 PCH PARTNERS SANDLER ROLNICK AND MORSE 10000 SANTA MONICA BLVD #320 LOS ANGELES CA 90067 BUYER-MANN ALFRED E

APPENDIX B

FLORAL AND FAUNAL COMPENDIA FOR THE TUNA CANYON SIGNIFICANT ECOLOGICAL AREA

INTRODUCTION TO FLORAL AND FAUNAL SURVEY

Floral components encountered during the survey were recorded in terms of relative abundance and host habitat type. Expected site use by wildlife is derived from survey information combined with documented habitat preferences of regional wildlife species that, whether or not recorded during the survey, are considered likely to include the project area within their range.

Habitat designations used in this report are according to the classification system of Holland (1986). Floral taxonomy used in this report follows that of Raven et al. (1986). Common plant names, where not available from Roberts or Beauchamp, are taken from Munz (1984) and Abrams (1923). Vertebrates identified in the field by sight, calls, tracks, scat, or other signs are cited according to the nomenclature of Jennings (1983) for amphibians and reptiles, AOU (1983, 1985, 1987, 1989) for birds, and Jones et al. (1982) for mammals.

FLORAL COMPENDIUM[1]

LEGEND

HABITAT[2]

SAW - Southern Sycamore - Alder Riparian Woodland
SWS - Southern Willow Scrub
OW - Coast Live Oak Woodland
CC - Chamise Chaparral
CMC - Ceanothus megacarpus chaparral
CSS - Diega Coastal Sage Scrub

ABUNDANCE[3]

a - abundant--ubiquitous throughout the noted community; occurs in high numbers or in large, pure stands
c - common--a dominant species in the noted community; occurs in relatively high numbers
f - frequent--occurs in moderate numbers, but not a dominant element of the noted community
o - occasional--occurs sporadically in the noted community; generally not an obvious or conspicuous component
i - infrequent--occurs rarely, or only in a small portion of the noted community; often not apparent unless searched for

STATUS

* Non-native

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[1] This is not intended as an exhaustive listing of the vegetation occurring on the site; some annual herbs or very uncommon species may not have been detected by the field survey.

[2] Indicates habitat type (plant community) in which species most commonly occurs; species may occur in limited numbers or restricted localities in other communities.

[3] This is simply a gross indication of relative frequency of occurrence on the site. Quantitative sampling methods were not employed to arrive at these determinations.

VASCULAR PLANTS

LYCOPODIAE

	SAW	SWS	OW	CC	CMC	CSS
SELAGINELLACEAE - SPIKE-MOSS FAMILY						
Selaginella bigelovii Bigelow's spike-moss	i	-	-	-	-	-

FILICAE

ADIANTACEAE - LIP FERN FAMILY						
Adiantum capillus-veneris Venus-hair fern	i	-	-	-	-	-
Pellaea andromedaefolia coffee fern	-	-	i	i	-	-
DENNSTAEDTIACEAE - BRACKEN FERN FAMILY						
Pteridium aquilinum western bracken	i	-	-	-	-	-
POLYPODIACEAE - POLYPODY FERN FAMILY						
Polypodium californicum California polypody	i	-	i	-	-	-

ANGIOSPERMAE (DICOTYLEDONES)

	AMARANTHACEAE - AMARANTH FAMILY						
*	Amaranthus albus tumbleweed	-	-	-	i	-	-
	Amaranthus blitoides prostrate amaranth	-	-	-	-	-	i

	ANACARDIACEAE - SUMAC FAMILY	SAW	SWS	OW	CC	CMC	CSS
	Malosma laurina laurel sumac	-	-	i	o	o	c
	Rhus integrifolia lemonadeberry	-	-	o	o	o	o
	Toxicodendron diversilobum poison-oak	f	o	f	o	i	i
	APIACEAE - CARROT FAMILY						
	Apiastrum angustifolium wild celery	o	-	-	-	-	-
*	Conium maculatum poison-hemlock	o	i	i	-	-	-
*	Foeniculum vulgare sweet fennel	i	-	-	-	-	-
	Lomatium utriculatum common lomatium	-	-	-	i	i	i
	APOCYNACEAE - DOGBANE FAMILY						
*	Vinca major periwinkle	o	-	-	-	-	-
	ASCLEPIADACEAE - MILKWEED FAMILY						
	Asclepias fascicularis narrow-leaved milkweed	-	-	-	i	-	i
	ASTERACEAE - SUNFLOWER FAMILY						
	Acourtia microcephala sacapellote	-	-	o	o	i	i
	Ambrosia acanthicarpa annual burweed	i	o	-	-	-	-
	Ambrosia psilostachya western ragweed	i	i	o	-	-	-
	Artemisia californica coastal sagebrush	-	-	o	o	o	a
	Artemisia douglasiana California mugwort	o	o	o	-	-	-
	Baccharis salicifolia mulefat	o	f	-	-	-	-
	Baccharis pilularis coyote brush	-	-	-	-	-	i

	ASTERACEAE - SUNFLOWER FAMILY (continued)	SAW	SWS	OW	CC	CMC	CSS
	Brickellia californica California brickellbush	-	-	-	i	i	o
*	Centaurea melitensis tocalote	-	-	i	o	o	o
*	Cirsium vulgare bull thistle	-	-	i	-	-	i
*	Conyza canadensis horseweed	i	i	i	i	i	i
	Corethrogyne filaginifolia cudweed aster	-	-	i	o	o	o
	Encelia californica California bush sunflower	-	-	-	i	i	o
	Eriophyllum confertiflorum golden yarrow	-	-	i	i	i	o
	Filago californica California fluffweed	-	-	-	i	i	i
	Gnaphalium bicolor bicolored cudweed	-	-	i	-	-	i
	Gnaphalium californicum California everlasting	-	-	o	o	o	o
	Gnaphalium microcephalum white everlasting	-	-	i	i	i	i
	Grindelia robusta gum-plant	-	-	i	i	i	i
	Gutierrezia californica California matchweed	-	i	i	i	i	i
	Hazardia squarrosa saw-toothed goldenbush	-	-	i	o	i	o
	Helianthus annuus common sunflower	i	-	-	-	-	-
	Hemizonia fasciculata fascicled tarweed	-	-	-	i	i	o
	Heterotheca grandiflora telegraph weed	-	-	-	o	-	o
	Isocoma veneta coastal goldenbush	-	i	i	i	-	o
*	Lactuca serriola prickly lettuce	o	o	i	-	-	-
	Lasthenia californica coast goldfields	-	-	-	o	o	o
	Malacothrix saxatilis cliff malacothrix	-	-	i	-	-	-
	Senecio douglasii shrubby butterweed	-	-	-	i	-	i
*	Silybum marianum milk thistle	-	-	i	-	-	i
	Solidago californica California goldenrod	o	i	o	-	-	i

	ASTERACEAE - SUNFLOWER FAMILY (continued)	SAW	SWS	OW	CC	CMC	CSS
*	Sonchus asper prickly sow-thistle	o	o	-	-	-	-
	Stephanomeria virgata twiggy wreathplant	i	i	i	i	-	i
	Venegasia carpesioides canyon sunflower	o	o	f	i	-	i
*	Xanthium strumarium cocklebur	i	o	-	-	-	-
	BETULACEAE - BIRCH FAMILY						
	Alnus rhombifolia white alder	c	-	-	-	-	-
	BORAGINACEAE - BORAGE FAMILY						
	Amsinckia intermedia common fiddleneck	-	-	i	o	i	o
	Cryptantha intermedia common forget-me-not	-	-	-	-	-	o
	BRASSICACEAE - MUSTARD FAMILY						
*	Brassica geniculata short-podded mustard	o	o	o	o	o	o
*	Brassica nigra black mustard	o	o	o	o	o	o
	Descurainia pinnata western tansy-mustard	o	o	o	i	i	o
	Lepidium nitidum shining peppergrass	-	-	i	i	i	i
*	Lobularia maritima sweet-alyssum	o	i	i	-	-	-
*	Raphanus sativus wild radish	i	i	i	-	-	-
*	Sisymbrium irio London-rocket	o	i	i	-	-	-
*	Sisymbrium officinale hedge-mustard	i	i	i	-	-	-
	Lonicera subspicata southern honeysuckle	o	-	o	-	-	-
	Sambucus mexicana Mexican elderberry	o	i	o	i	o	o
	Symphoricarpos mollis spreading snowberry	o	i	o	-	-	-

	CARYOPHYLLACEAE - PINK FAMILY	SAW	SWS	OW	CC	CMC	CSS
	Silene laciniata fringed-Indian pink	-	-	i	o	o	o
*	Stellaria media common chickweed	o	i	o	-	-	-
	CHENOPODIACEAE - GOOSEFOOT FAMILY						
	Atriplex lentiformis quail brush	-	-	-	-	-	i
*	Atriplex semibaccata Australian saltbush	-	-	-	-	-	i
*	Chenopodium album	i	i	-	-	-	-
	CISTACEAE - ROCK-ROSE FAMILY						
	Helianthemum scoparium common rock-rose	-	-	-	o	i	o
	CONVOLVULACEAE - MORNING-GLORY FAMILY						
	Calystegia macrostegia western bindweed	-	-	-	o	o	o
	Cuscuta californica California dodder	-	-	-	o	o	o
	CRASSULACEAE - STONECROP FAMILY						
	Crassula conata dwarf stonecrop	-	-	i	-	-	-
	Dudleya lanceolata lance-leaved dudleya	-	-	-	i	-	i
	Dudleya pulverulenta chalk dudleya	-	-	-	i	-	i
	CUCURBITACEAE - GOURD FAMILY						
	Cucurbita foetidissima coyote-melon	-	-	i	-	-	-
	Marah macrocarpus wild ucumber	-	-	i	i	i	o

	EUPHORBIACEAE - SPURGE FAMILY	SAW	SWS	OW	CC	CMC	CSS
	Chamaesyce albomarginata rattlesnake spurge	-	-	-	i	-	i
	Eremocarpus setigerus doveweed	i	i	i	i	-	i
*	Ricinus communis castor-bean	o	o	-	-	-	-
	FABACEAE - PEA FAMILY						
	Lotus scoparius deerweed	-	-	i	o	-	o
	Lupinus sp. lupine						
	Lupinus longifolius Watson's bush lupine	-	-	-	i	-	i
*	Medicago polymorpha bur-clover	o	o	o	-	-	i
*	Melilotus indicus yellow sweet-clover	o	o	i	-	-	i
	FAGACEAE - BEECH FAMILY						
	Quercus agrifolia coast live oak	o	-	a	o	o	i
	Quercus dumosa California scrub oak						
	GERANIACEAE - GERANIUM FAMILY						
*	Erodium cicutarium red-stemmed filaree	o	f	f	f	f	f
	HYDROPHYLLACEAE - WATERLEAF FAMILY						
	Phacelia cicutaria caterpillar phacelia	o	o	o	o	o	o
	Phacelia distans wild heliotrope	i	i	i	o	o	o
	Phacelia ramosissima branching phacelia	-	-	o	o	i	i

	JUGLANDACEAE - WALNUT FAMILY	SAW	SWS	OW	CC	CMC	CSS
	Juglans californica California black walnut	-	-	-	-	-	i
	LAMIACEAE - MINT FAMILY						
*	Marrubium vulgare horehound	o	o	o	i	i	o
	Salvia apiana white sage	-	-	i	o	i	f
	Salvia columbariae chia	-	-	-	i	i	i
	Salvia leucophylla purple sage	-	-	-	i	i	i
	Salvia mellifera black sage	-	-	-	o	i	f
	Salvia spathocea pitchersage	-	-	i	-	-	-
	Stachys albens white hedge-nettle	i	i	i	-	-	-
	Trichostema lanatum woolly blue-curls	-	-	-	i	-	-
	LAURACEAE - LAUREL FAMILY						
	Umbellularia californica California laurel	o	-	o	-	-	-
	MALVACEAE - MALLOW FAMILY						
	Malacothamnus fasciculatus mesa bushmallow	-	-	i	o	i	o
*	Malva parviflora cheeseweed	i	i	i	-	-	-
	MYRTACEAE - MYRTLE FAMILY						
	Eucalyptus sp. gumtree	o	-	-	-	-	-
*	Eucalyptus globulus blue gum	o	-	i	-	-	-

		SAW	SWS	OW	CC	CMC	CSS
NYCTAGINACEAE - FOUR-O'CLOCK FAMILY							
	Mirabilis californica California wishbone-bush	-	-	-	i	i	o
ONAGRACEAE - EVENING-PRIMROSE FAMILY							
	Clarkia purpurea winecup clarkia	-	-	i	-	-	-
	Epilobium canum California fuchsia	-	-	o	o	o	o
PAPAVERACEAE - POPPY FAMILY							
	Eschscholzia californica California poppy	i	i	o	i	i	i
PLANTAGINACEAE - PLANTAIN FAMILY							
	Plantago erecta California plantain	-	-	-	i	-	i
PLATANACEAE - SYCAMORE FAMILY							
	Platanus racemosa California sycamore	a	i	i	-	-	-
POLEMONIACEAE - PHLOX FAMILY							
	Leptodactylon californicum prickly-phlox	-	-	-	i	-	-
POLYGONACEAE - BUCKWHEAT FAMILY							
	Eriogonum cinereum ashy-leaved buckwheat	-	-	i	i	-	f
	Eriogonum fasciculatum California buckwheat	-	-	i	o	i	c
	Pterostegia drymarioides California thread-stem	-	-	-	i	-	-
*	Rumex crispus curly dock	o	o	i	-	-	-

	PORTULACACEAE - PURSLANE FAMILY	SAW	SWS	OW	CC	CMC	CSS
	Claytonia perfoliata miner's-lettuce	-	-	i	i	-	-
	PRIMULACEAE - PRIMROSE FAMILY						
*	Anagallis arvensis scarlet pimpernel	-	-	i	i	-	i
	RANUNCULACEAE - CROWFOOT FAMILY						
	Clematis lasiantha chaparral virgin's bower	i	i	i	-	-	-
	Delphinium patens zigzag delphinium	-	-	i	-	-	-
	RHAMNACEAE - BUCKTHORN FAMILY						
	Ceanothus megacarpus big-podded ceanothus	-	-	-	o	a	i
	Ceanothus spinosus green-barked ceanothus	-	-	-	o	o	o
	Rhamnus californica California coffeeberry	o	-	o	-	-	-
	Rhamnus crocea redberry	-	-	-	i	-	-
	ROSACEAE - ROSE FAMILY						
	Adenostoma fasciculatum chamise	-	-	i	a	o	-
	Cercocarpus betuloides birch-leaf mountain-mahogany	-	-	-	i	i	-
	Heteromeles arbutifolia toyon	-	-	-	o	o	i
	ROSACEAE - ROSE FAMILY						
	Rubus ursinus California blackberry	o	o	o	-	-	-

	RUBIACEAE - MADDER FAMILY	SAW	SWS	OW	CC	CMC	CSS
	Galium angustifolium narrow-leaved bedstraw	-	-	-	o	i	o
*	Galium aparine goose grass	o	o	f	-	-	-
	SALICACEAE - WILLOW FAMILY						
	Salix hindsiana sandbar willow	i	o	-	-	-	-
	Salix laevigata red willow	o	o	-	-	-	-
	Salix lasiolepis arroyo willow	o	a	-	-	-	-
	SAXIFRAGACEAE - SAXIFRAGE FAMILY						
	Ribes malvaceum pink-flowered currant	i	-	o	o	o	o
	SCROPHULARIACEAE - FIGWORT FAMILY						
	Castilleja affinis coast paintbrush	-	-	-	i	i	i
	Diplacus longiflorus sticky monkey-flower	-	-	i	o	i	o
	Keckiella cordifolia heart-leaved penstemon	o	i	o	o	o	i
	Mimulus cardinalis scarlet monkey-flower	o	-	-	-	-	-
	Orthocarpus purpurascens common owl's-clover	-	-	i	i	-	i
*	Verbascum thapsus common mullein	o	o	o	-	-	-
	SOLANACEAE - NIGHTSHADE FAMILY						
*	Datura stramonium annual jimsonweed	i	o	i	-	-	-
*	Nicotiana glauca tree tobacco	o	o	i	i	i	i
	Solanum douglasii Douglas' nightshade	o	o	o	i	i	o

URTICACEAE - NETTLE FAMILY	SAW	SWS	OW	CC	CMC	CSS
Urtica dioica giant creek nettle	o	i	-	-	-	-

ANGIOSPERMAE (MONOCOTYLEDONES)

AGAVACEAE - AGAVE FAMILY						
Yucca whipplei Spanish bayonet	-	-	-	f	o	f

ALLIACEAE - ONION FAMILY						
Allium sp. onion	-	-	i	-	-	i
Bloomeria crocea common golden stars	-	-	o	i	-	o
Dichelostemma pulchellum blue dicks	-	-	o	o	i	o

CYPERACEAE - SEDGE FAMILY						
Carex sp. sedge	o	i	-	-	-	-

IRIDACEAE - IRIS FAMILY						
Sisyrinchium bellum blue-eyed grass	-	-	i	-	-	i

JUNCACEAE - RUSH FAMILY						
Juncus mexicanus Mexican rush	o	o	i	-	-	-

LILIACEAE - LILY FAMILY						
Calochortus catalinae Catalina mariposa	-	-	i	i	-	i
Chlorogalum pomeridianum soap plant	-	-	-	o	i	o

	POACEAE - GRASS FAMILY	SAW	SWS	OW	CC	CMC	CSS
*	Avena barbata slender oat	o	o	f	i	i	o
*	Avena fatua wild oat	o	o	f	i	i	o
*	Bromus diandrus ripgut grass	o	o	o	i	i	i
*	Bromus rubens foxtail chess	o	o	o	i	i	o
*	Bromus tectorum cheat grass	o	o	o	i	i	i
	Cortaderia atacamensis pampas grass	i	i	-	-	-	-
*	Cynodon dactylon Bermuda grass	i	-	-	-	-	-
	Elymus condensatus giant wild rye	o	o	f	i	i	o
	Elymus glaucus western wild rye	o	o	o	-	-	-
*	Hordeum murinum glaucous foxtail barley	o	o	o	-	-	-
*	Lolium multiflorum Italian ryegrass	o	o	o	i	i	o
	Melica imperfecta coast range melic	i	i	o	-	-	i
*	Oryzopsis miliacea millet ricegrass	o	o	o	-	-	-
*	Polypogon monspeliensis rabbit's-foot grass	o	-	-	-	-	-
	Stipa coronata giant needlegrass	-	-	-	o	i	o
	Stipa lepida small-flowered needlegrass	-	-	i	i	i	o
	Stipa pulchra purple needlegrass	-	-	i	i	i	o
	Vulpia megalura foxtail fescue	o	o	o	i	i	i

FAUNAL COMPENDIUM[1]

LEGEND

ABUNDANCE[2]

c - common--observed or expected throughout the site in relatively high numbers
f - fairly common--observed or expected in moderate numbers over most of the site
u - uncommon--observed or expected in low numbers over a portion or all of the site
o - occasional--observed or expected only sporadically on the site
s - scarce--observed or expected rarely on the site

STATUS

\+ Presence noted by direct sighting, call identification or observation of tracks, scat or other signs.

* Non-native

SEASONALITY (Birds Only)[3]

R - resident or found in vicinity year round
S - present in summer only
W - present in winter only
V - visitor from nearby areas
T - transient

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1 List includes species observed or expected to occur on or in the immediate vicinity of the site.

2 This is simply a gross indication of relative frequency of occurrence of vertebrate species on the site; quantitative sampling methods were not employed to arrive at these determinations. Abundances are not provided for invertebrate species.

3 This is simply a gross indication of relative frequency of occurrence on the site; quantitative sampling methods were not employed to arrive at these determinations.

INVERTEBRATES

BUTTERFLIES AND SKIPPERS

PAPILIONIDAE - SWALLOWTAILS AND PARNASSIANS

Papilio zelicaon zelicaon
anise swallowtail
larval food plant(s): various Apiaceae, including Foeniculum vulgare; citrus (Rutaceae)

Papilio rutulus rutulus
western tiger swallowtail
larval food plant(s): principally Platanus racemosa (Platanaceae), but also Salix spp. and Populus spp. (Salicaceae)

Papilio eurymedon
pale swallowtail
larval food plant(s): Rhamnus crocea, R. californica, Ceanothus spp. (all Rhamnaceae), Prunus ilicifolia (Rosaceae) and occasionally domesticated Prunus.

PIERIDAE - WHITES, SULFURS MARBLES AND ORANGETIPS

Pieris sisymbrii sisymbrii
California white
larval food plant(s): Caulanthus spp., Streptanthus spp., and Arabis spp. (all Brassicaceae)

Pieris protodice
common white
larval food plant(s): Lepidium fremontii (Brassicaceae) in deserts; many other Brassicaceae also used (Cleome spp., Brassica spp., Sisymbrium spp. etc.)

* Pieris rapae
cabbage butterfly, cabbage white
larval food plant(s): many Brassicaceae, native and introduced

Colias eurytheme
alfalfa butterfly
larval food plant(s): the non-native Medicago sativa; Lotus scoparius, Trifolium spp. and possibly Astragalus spp. (all Fabaceae)

Colias alexandra harfordii
Harford's sulfur
larval food plant(s): Astragalus spp. (Fabaceae)

Phoebis sennae marcellina
senna sulfur
larval food plant(s): non-native Cassia spp. (Fabaceae); in deserts, possibly natives C. armata and C. covesii

Eurema nicippe
nicippe sulfur
larval food plant(s): Cassia spp. and probably other Fabaceae

Nathalis iole
dwarf yellow
larval food plant(s): Bidens pilosa and other Asteraceae

Anthocharis sara sara
Sara orangetip
larval food plant(s): Arabis spp., Barbarea vulgaris, Brassica kaber, Descurainea spp. and Sisymbrium officinale (all Brassicaceae)

DANAIDAE - MILKWEED BUTTERFLIES

Danaus plexippus
monarch
larval food plant(s): Asclepias spp. (Asclepiadaceae)

Danaus gilippus strigosus
striated queen
larval food plant(s): Sarcostemma spp., and at least rarely, certain Asclepias spp. (Asclepiadaceae)

SATYRIDAE - SATYRS, ARCTICS AND RINGLETS

Coenonympha tullia california
California ringlet
larval food plant(s): both native and non-native grasses (Poaceae)

Cercyonis sthenele silvestris
sylvan satyr
larval food plant(s): grasses (Poaceae)

NYMPHALIDAE - BRUSH-FOOTED BUTTERFLIES

Euphydryas chalcedona chalcedona
chalcedon checkerspot, common checkerspot
larval food plant(s): most commonly Mimulus aurantiacus and Scrophularia californica (both Scrophulariaceae), but a variety of other hosts are also used (mainly Scrophulariaceae)

Melitaea (Chlosyne) gabbii gabbii
Gabb's checkerspot
larval food plant(s): Corethrogyne filaginifolia, Heterotheca grandiflora; Hazardia squarrosa reported (all Asteraceae)

Phyciodes mylitta mylitta
thistle crescent
larval food plant(s): Cirsium spp. (Asteraceae); species not identified

Nymphalis antiopa antiopa
mourning cloak
larval food plant(s): Salix spp. and Populus spp. (both Salicaceae); Ulmus spp. (Ulmaceae)

Nymphalis californica
California tortoiseshell
larval food plant(s): Ceanothus spp. (Rhamnaceae)

Vanessa atalanta rubria
red admiral
larval food plant(s): Urtica holosericea, and perhaps Parietaria spp. in deserts (both Urticaceae); widespread non-natives hops, Humulus lupulus (Moraceae) and baby's tears, Soleirolia soleirolii (Urticaceae)

Vanessa (Cynthia) cardui
painted lady
larval food plant(s): Malva spp. (Malvaceae), Cirsium spp. (Asteraceae), Urtica spp. (Urticaceae), Lupinus spp. (Fabaceae), Cryptantha spp. and Amsinckia spp. (Boraginaceae) and many others

Vanessa (Cynthia) carye anabella
west coast lady
larval food plant(s): Malva spp., Sidalcea spp. (Malvaceae), and Urtica holosericea (Urticaceae); Sphaeralcea ambigua (Malvaceae) in desert areas

Vanessa (Cynthia) virginiensis
Virginia lady
larval food plant(s): Gnaphalium spp., Anaphalis margaritacea (both Asteraceae)

Precis coenia
buckeye
larval food plant(s): Plantago erecta and P. lanceolata (Plantaginaceae); Mimulus spp. and Antirrhinum spp. (Scrophulariaceae)

Limenitis lorquini lorquini
Lorquin's admiral
larval food plant(s): Salix spp. (Salicaceae); also Prunus virginiana var demissa (Rosaceae) in the Tehachapi Mts.

Adelpha bredowii californica
California sister
larval food plant(s): Quercus chrysolepis (Fagaceae); possibly other Quercus spp.

LYCAENIDAE - METALMARKS, HAIRSTREAKS, COPPERS AND BLUES

RIODININAE - METALMARKS

Apodemia mormo virgulti
Behr's metalmark
larval food plant(s): probably Eriogonum fasiculatum ssp. fasciculatum and ssp. polifolium (Polygonaceae)

THECLINAE - HAIRSTREAKS

Atlides halesus corcorani
great purple hairstreak
larval food plant(s): Phoradendron flavescens var. macrophyllum, P. bolleanum var. densum; probably also P. californicum and P. juniperinum (all Loranthaceae)

Strymon melinus pudica
common hairstreak
larval food plant(s): quite varied; includes Malva spp. and Hibiscus spp. (Malvaceae), Humulus (Moraceae), Amorpha spp. and Phaseolus spp. (Fabaceae), Nolina spp. (Agavaceae), Polygonum spp. and Eriogonum spp. (Polygonaceae)

Satyrium californicum
California hairstreak
larval food plant(s): Quercus spp. (Fagaceae)

Satyrium sylvinum desertorum
southern sylvan hairstreak
larval food plant(s): Salix spp. (Salicaceae)

Satyrium sylvinum dryope
dryope hairstreak
larval food plant(s): Salix spp. (Salicaceae)

Satyrium auretorum spadix
nut brown hairstreak
larval food plant(s): Quercus dumosa; probably also Q. wislizenii (Fagaceae)

Satyrium tetra
grey hairstreak
larval food plant(s): Cercocarpus betuloides (Rosaceae)

Satyrium saepium chalcis
southern buckthorn hairstreak
larval food plant(s): Ceanothus spp. (Rhamnaceae)

Callophrys (Incisalia) augustus iroides
western elfin
larval food plant(s): most extensively Cuscuta spp. (Convolvulaceae); also on Ceanothus spp. (Rhamnaceae), Chlorogalum pomeridanum (Liliaceae), and Arbutus menziesii (Ericaceae)

Callophrys affinis perplexa
California green hairstreak
larval food plant(s): Lotus spp. (Fabaceae), Eriogonum spp. (Polygonaceae)

LYCAENINAE - COPPERS

Lycaena arota nubila
cloudy copper
larval food plant(s): Ribes spp. (gooseberry; Saxifragaceae)

Lycaena gorgon
gorgon copper
larval food plant(s): Eriogonum elongatum (Polygonaceae) in southern California

PLEBEJINAE - BLUES

Leptotes marina
marina blue
larval food plant(s): in urban areas, Plumbago spp. (Plumbaginaceae); elsewhere, many Fabaceae including Medicago spp., Lathyrus spp., and Astragalus spp., and at least in the San Gabriel Mts., Amorpha californica (all Fabaceae)

Brephidium exilis
pigmy blue
larval food plant(s): Chenopodium spp., Atriplex spp. (Chenopodiaceae)

Hemiargus ceraunus gyas
Edward's blue
larval food plant(s): Prosopis spp. and Medicago spp. (Fabaceae)

Hemiargus isola alce
Mexican blue, Reakirt's blue
larval food plant(s): unknown; elsewhere, Prosopis spp. (Fabaceae)

Everes amyntula
western tailed blue
larval food plant(s): Astragalus spp. (Fabaceae); species are uncertain

Plebejus acmon acmon
acmon blue
larval food plant(s): Astragalus spp. and Lotus spp., especially Lotus scoparius (Fabaceae); Eriogonum spp. also used extensively (Polygonaceae)

Euphilotes (Philotes) bernardino bernardino
Bernardino blue
larval food plant(s): Eriogonum fasciculatum sspp. fasciculatum, polifolium and foliolosum (Polygonaceae)

Glaucopsyche lygdamus australis
southern blue
larval food plant(s): Lotus scoparius (Fabaceae)

Celastrina argiolus echo
echo blue
larval food plant(s): Ceanothus spp. (Rhamnaceae), Cornus spp. (Cornaceae), Spiraea (Rosaceae) and possibly various Fabaceae

HESPERIIDAE - SKIPPERS

Lerodea eufala
eufala skipper
larval food plant(s): unidentified grasses (Poaceae)

Paratrytone melane
umber skipper
larval food plant(s): grasses (Poaceae) including at least Deschampsia caespitosa

Ochlodes sylvanoides sylvanoides
woodland skipper
larval food plant(s): unidentified grasses (Poaceae)

Ochlodes agricola agricola
rural skipper
larval food plant(s): grasses (Poaceae)

Atalopetes campestris
field skipper
larval food plant(s): grasses (Poaceae)

Polites sabuleti sabuleti
sandhill skipper
larval food plant(s): grasses, mostly Distichlis spicata (Poaceae)

Hesperia comma leussleri
Leussler's skipper
larval food plant(s): unknown; grasses in the laboratory

Hesperia columbia
Columbia skipper
larval food plant(s): Koeleria cristata and Danthonia californica var. americana (both Poaceae), at least as oviposition substrates

Hylephila phyleus
fiery skipper
larval food plant(s): bermuda grass, Cynodon dactylon (Poaceae)

Heliopetes ericetorum
large white skipper
larval food plant(s): various Malvaceae, especially Malacothamnus fasciculatus

Pyrgus communis albescens
western checkered skipper
larval food plant(s): Malvaceae, especially Malva spp. and Sidalcea spp.

Erynnis brizo lacustra
lacustra duskywing
larval food plant(s): scrub oaks (Quercus dumosa, Fagaceae)

Erynnis zarucco funeralis
funereal duskywing
larval food plant(s): Lotus scoparius, Olneya tesota and Sesbania exaltata (all Fabaceae); Nemophila membranacea (Hydrophyllaceae) use documented in western Colorado Desert

Erynnis tristis tristis
mournful duskywing
larval food plant(s): Quercus agrifolia, Q. lobata and Q. douglasii (Fagaceae)

Erynnis propterius propterius
western oak duskywing, propertius duskywing
larval food plant(s): oaks (Fagaceae); at least Quercus agrifolia in our area

TERRESTRIAL VERTEBRATES

AMPHIBIANS

	SALAMANDRIDAE - NEWTS	Abundance
	Taricha torosa California newt	u

	PLETHODONTIDAE - LUNGLESS SALAMANDERS	
	Aneides lugubris arboreal salamander	o
	Batrachoseps nigriventris black-bellied slender salamander	c
+	Batrachoseps pacificus Pacific slender salamander	c
	Ensatina eschscholtzi ensatina	o

	BUFONIDAE - TRUE TOADS	
+	Bufo boreas western toad	c

	HYLIDAE - TREEFROGS	
	Hyla cadaverina California treefrog	u
	Hyla regilla Pacific treefrog	u

REPTILES

	IGUANIDAE - IGUANID LIZARDS	
	Phrynosoma coronatum coast horned lizard	o
+	Sceloporus occidentalis western fence lizard	c
+	Uta stansburiana side-blotched lizard	c

		Abundance
SCINCIDAE - SKINKS		
	Eumeces skiltonianus western skink	f
TEIIDAE - WHIPTAIL LIZARDS		
	Cnemidophorus tigris western whiptail	f
ANGUIDAE - ALLIGATOR LIZARDS		
+	Gerrhonotus multicarinatus southern alligator lizard	c
ANNIELLIDAE - CALIFORNIA LEGLESS LIZARDS		
	Anniella pulchra California legless lizard	o
LEPTOTYPHLOPIDAE - SLENDER BLIND SNAKES		
	Leptotyphlops humilis western blind snake	o
COLUBRIDAE - COLUBRID SNAKES		
	Coluber constrictor racer	u
	Diadophis punctatus ringneck snake	u
	Hypsiglena torquata night snake	u
	Lampropeltis getulus common kingsnake	o
	Lampropeltis zonata California mountain kingsnake	s
	Masticophis flagellum coachwhip	u
	Masticophis lateralis striped racer	f
	Pituophis melanoleucus gopher snake	c
	Salvadora hexalepis western patch-nosed snake	u

	COLUBRIDAE - COLUBRID SNAKES (continued)	Abundance
	Tantilla planiceps western black-headed snake	u
	Thamnophis couchi western aquatic garter snake	o
	Thamnophis hammondii two-striped garter snake	o
	Trimorphodon biscutatus lyre snake	s

VIPERIDAE - VIPERS

	Crotalus viridis western rattlesnake	u

BIRDS

ANATIDAE - WATERFOWL

+	Anas platyrhynchos mallard	s,T

CATHARTIDAE - NEW WORLD VULTURES

+	Cathartes aura turkey vulture	f,R

ACCIPITRIDAE - HAWKS

	Elanus caeruleus black-shouldered kite	o,V
	Circus cyaneus northern harrier	u,W
	Accipiter striatus sharp-shinned hawk	u,W
+	Accipiter cooperii Cooper's hawk	o,R
	Buteo lineatus red-shouldered hawk	o,R
+	Buteo jamaicensis red-tailed hawk	f,R
	Aquila chrysaetos golden eagle	s,V

	FALCONIDAE - FALCONS	Abundance
+	Falco sparverius American kestrel	f,R
	Falco mexicanus prairie falcon	s,V
	PHASIANIDAE - PHEASANTS & QUAILS	
+	Callipepla californica California quail	c,R
	Oreortyx pictus mountain quail	u,R
	CHARADRIIDAE - PLOVERS	
	Charadrius vociferus killdeer	u,T
	LARIDAE - GULLS & TERNS	
	Larus delawarensis ring-billed gull	o,V
	Larus californicus California gull	o,V
	Larus occidentalis western gull	o,V
	COLUMBIDAE - PIGEONS & DOVES	
	Columba fasciata band-tailed pigeon	u,R
+	Zenaida macroura mourning dove	f,R
	CUCULIDAE - CUCKOOS & ROADRUNNERS	
	Geococcyx californianus greater roadrunner	u,R
	TYTONIDAE - BARN OWLS	
	Tyto alba barn owl	o,R

	STRIGIDAE - TRUE OWLS	Abundance
	Otus kennicottii western screech-owl	o,R
	Bubo virginianus great horned owl	u,R
	CAPRIMULGIDAE - GOATSUCKERS	
	Phalaenoptilus nuttallii common poorwill	u,S
	APODIDAE - SWIFTS	
	Chaetura vauxi Vaux's swift	f,T
+	Aeronautes saxatalis white-throated swift	f,R
	TROCHILIDAE - HUMMINGBIRDS	
	Archilochus alexandri black-chinned hummingbird	f,S
+	Calypte anna Anna's hummingbird	c,R
	Calypte costae Costa's hummingbird	f,S
+	Selasphorus rufus rufous hummingbird	u,T
	Selasphorus sasin Allen's hummingbird	f,T
	PICIDAE - WOODPECKERS	
+	Melanerpes formicivorus acorn woodpecker	f,R
	Sphyrapicus ruber red-breasted sapsucker	u,W
+	Picoides nuttallii Nuttall's woodpecker	u,R
	Picoides pubescens downy woodpecker	u,R
+	Colaptes auratus northern flicker	f,R

	TYRANNIDAE - TYRANT FLYCATCHERS	Abundance
	Contopus sordidulus western wood-pewee	f,S
+	Contopus borealis olive-sided flycatcher	u,T
	Empidonax hammondii Hammond's flycatcher	u,T
+	Empidonax difficilis Pacific-slope flycatcher	f,S
	Sayornis nigricans black phoebe	u,R
	Sayornis saya Say's phoebe	u,W
+	Myiarchus cinerascens ash-throated flycatcher	f,S
	Tyrannus vociferans Cassin's kingbird	u,S
+	Tyrannus verticalis western kingbird	f,S

	HIRUNDINIDAE - SWALLOWS	
	Tachycineta bicolor tree swallow	f,W
+	Tachycineta thalassina violet-green swallow	f,S
+	Stelgidopteryx serripennis northern rough-winged swallow	f,S
	Hirundo pyrrhonota cliff swallow	c,S
+	Hirundo rustica barn swallow	f,S

	CORVIDAE - JAYS & CROWS	
+	Aphelocoma coerulescens scrub jay	c,R
+	Corvus brachyrhynchos American crow	f,R
+	Corvus corax common raven	f,R

	PARIDAE - TITMICE	
+	Parus inornatus plain titmouse	f,R

		Abumdamce
AEGITHALIDAE - BUSHTITS		
+	Psaltriparus minimus bushtit	c,R
SITTIDAE - NUTHATCHES		
	Sitta canadensis red-breasted nuthatch	o,W
TROGLODYTIDAE - WRENS		
	Salpinctes obsoletus rock wren	o,W
	Catherpes mexicanus canyon wren	o,R
+	Thryomanes bewickii Bewick's wren	c,R
+	Troglodytes aedon house wren	f,R
MUSCICAPIDAE - KINGLETS, GNATCATCHERS, THRUSHES & BABBLERS		
+	Regulus calendula ruby-crowned kinglet	f,W
+	Polioptila caerulea blue-gray gnatcatcher	u,R
	Sialia mexicana western bluebird	u,R
	Catharus ustulatus Swainson's thrush	u,R
	Catharus guttatus hermit thrush	c,W
+	Chamaea fasciata wrentit	c,R
MIMIDAE - THRASHERS		
+	Mimus polyglottos northern mockingbird	f,R
+	Toxostoma redivivum California thrasher	c,R

	BOMBYCILLIDAE - WAXWINGS	Abundance
	Bombycilla cedrorum cedar waxwing	o,T
	PTILOGONATIDAE - SILKY-FLYCATCHERS	
	Phainopepla nitens phainopepla	u,S
	LANIIDAE - SHRIKES	
	Lanius ludovicianus loggerhead shrike	u,R
	STURNIDAE - STARLINGS	
+*	Sturnus vulgaris European starling	c,R
	VIREONIDAE - VIREOS	
	Vireo solitarius solitary vireo	o,T
	Vireo huttoni Hutton's vireo	u,R
	Vireo gilvus warbling vireo	u,S
	EMBERIZIDAE - WOOD WARBLERS, TANAGERS, BUNTINGS & BLACKBIRDS	
+	Vermivora celata orange-crowned warbler	f,R
	Vermivora ruficapilla Nashville warbler	u,T
	Dendroica petechia yellow warbler	o,T
+	Dendroica coronata yellow-rumped warbler	c,W
+	Dendroica nigrescens black-throated gray warbler	u,T
	Dendroica townsendi Townsend's warbler	u,T
+	Dendroica occidentalis hermit warbler	o,T

EMBERIZIDAE - WOOD WARBLERS, TANAGERS, BUNTINGS & BLACKBIRDS (continued)		Abundance
	Oporornis tolmiei MacGillivray's warbler	o,T
	Geothlypis trichas common yellowthroat	f,R
+	Wilsonia pusilla Wilson's warbler	f,T
	Piranga ludoviciana western tanager	u,T
+	Pheucticus melanocephalus black-headed grosbeak	f,S
	Guiraca caerulea blue grosbeak	u,S
+	Passerina amoena lazuli bunting	u,S
+	Pipilo erythrophthalmus rufous-sided towhee	c,R
+	Pipilo crissalis California towhee	c,R
	Spizella passerina chipping sparrow	o,W
+	Chondestes grammacus lark sparrow	f,R
	Amphispiza belli sage sparrow	u,R
+	Passerculus sandwichensis savannah sparrow	u,W
	Passerella iliaca fox sparrow	f,W
+	Melospiza melodia song sparrow	f,R
	Melospiza lincolnii Lincoln's sparrow	f,W
+	Zonotrichia atricapilla golden-crowned sparrow	c,W
+	Zonotrichia leucophrys white-crowned sparrow	c,W
+	Junco hyemalis dark-eyed junco	c,W
	Agelaius phoeniceus red-winged blackbird	c,R
	Sturnella neglecta western meadowlark	c,R
	Euphagus cyanocephalus Brewer's blackbird	c,R
	Molothrus ater brown-headed cowbird	u,V
	Icterus cucullatus hooded oriole	u,S

	EMBERIZIDAE - WOOD WARBLERS, TANAGERS, BUNTINGS & BLACKBIRDS (continued)	Abundance
	Icterus galbula northern oriole	u,S
	FRINGILLIDAE - FINCHES	
	Carpodacus purpureus purple finch	s,W
+	Carpodacus mexicanus house finch	c,R
	Carduelis pinus pine siskin	o,W
+	Carduelis psaltria lesser goldfinch	c,R
	Carduelis lawrencei Lawrence's goldfinch	u,S
	Carduelis tristis American goldfinch	f,R
	PASSERIDAE - OLD WORLD SPARROWS	
*	Passer domesticus house sparrow	c,R

MAMMALS

	DIDELPHIDAE - NEW WORLD OPOSSUMS	
*	Didelphis virginiana Virginia opossum	f
	VESPERTILIONIDAE - EVENING BATS[1]	
	Myotis evotis long-eared myotis	
	Myotis leibii small-footed myotis	
	Myotis thysanodes fringed myotis	
	Myotis volans long-legged myotis	
	Myotis yumanensis Yuma myotis	

	VESPERTILIONIDAE - EVENING BATS[1] (continued)	Abundance
	Myotis californicus California myotis	
	Eptesicus fuscus big brown bat	
	Lasiurus borealis red bat	
	Lasiurus cinereus hoary bat	
	Plecotus townsendii Townsend's big-eared bat	
	Antrozous pallidus pallid bat	
	MOLOSSIDAE - FREE-TAILED BATS[1]	
	Tadarida brasiliensis Brazilian free-tailed bat	
	Eumops perotis western mastiff bat	
	LEPORIDAE - HARES & RABBITS	
	Lepus californicus black-tailed jackrabbit	u
+	Sylvilagus bachmani brush rabbit	c
	Sylvilagus audubonii desert cottontail	f
	SCIURIDAE - SQUIRRELS	
+	Spermophilus beecheyi California ground squirrel	c
*	Sciurus niger fox squirrel	o
	GEOMYIDAE - POCKET GOPHERS	
+	Thomomys bottae Botta's pocket gopher	u

[1] The site is within the range of a number of bat species in several families, but it is unlikely that all are present. As their distribution varies according to season, and as the precise habitat requirements of each species are not well known, it is difficult to determine which species are present on the property.

	HETEROMYIDAE - POCKET MICE & KANGAROO RATS	Abundance
	Perognathus formosus long-tailed pocket mouse	u
	Perognathus californicus California pocket mouse	f
	Perognathus longimembris little pocket mouse	u
+	Dipodomys agilis agile kangaroo rat	u
	CRICETIDAE - NEW WORLD RATS & MICE	
	Reithrodontomys megalotis western harvest mouse	c
	Peromyscus californicus California mouse	f
	Peromyscus eremicus cactus mouse	u
	Peromyscus maniculatus deer mouse	c
	Peromyscus boylii brush mouse	f
+	Neotoma fuscipes dusky-footed woodrat	u
	Neotoma lepida desert woodrat	u
	MURIDAE - OLD WORLD RATS & MICE	
*	Rattus norvegicus Norway rat	u
*	Mus musculus house mouse	u
	CANIDAE - WOLVES & FOXES	
+	Canis latrans coyote	c
*	Canis familiaris domestic dog	f
	Vulpes vulpes red fox	f
	Urocyon cinereoargenteus gray fox	o

	PROCYONIDAE - RACCOONS	Abundance
	Bassariscus astutus ringtail	s
	Procyon lotor raccoon	f
	MUSTELIDAE - WEASELS, SKUNKS & OTTERS	
	Mustela frenata long-tailed weasel	o
	Taxidea taxus badger	s
	Spilogale gracilis western spotted skunk	u
+	Mephitis mephitis striped skunk	f
	FELIDAE - CATS	
*	Felis catus domestic cat	u
	Felis concolor mountain lion	s
+	Felis rufus bobcat	o
	CERVIDAE - DEER	
+	Odocoileus hemionus mule deer	f