

**BIOLOGICAL TECHNICAL REPORT
CANYON HILLS DEVELOPMENT PROJECT
LOS ANGELES, CALIFORNIA**

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PROJECT SUMMARY

Introduction

Biological surveys were conducted by Glenn Lukos Associates, Inc. (GLA) from March 2002 to February 2003 within the approximately 887-acre Canyon Hills project site (“project site” as well as the adjacent 56-acre Duke property (“Duke Property”) [Exhibits 1 and 2]. This biological technical report addresses both sites, and the survey efforts described below were performed as appropriate for both sites. For purposes of this document, the approximately 943-acre aggregate site depicted on Exhibit 2 is considered the “Study Area”. The Study Area supports habitat including native shrublands and woodlands with limited areas of disturbed ruderal vegetation. Native vegetation communities include upland and riparian habitats as described in detail below. No federally or State-listed threatened or endangered species were detected onsite. Approximately 200 acres near the southeast corner of the Study Area, including much of the Duke Property burned in the late 1990s and is characterized by early successional chaparral vegetation.

Field Surveys

Field studies focused on a number of primary objectives: (1) vegetation mapping; (2) floristic surveys for vascular plants; (3) floristic surveys for lichens; (4) special-status plant surveys; (5) special-status lichen surveys; (6) a detailed wildlife movement study [attached as Appendix A] (7) focused surveys for the coastal California gnatcatcher (*Polioptila californica californica*) and other special-status scrub-dependant avifauna; (8) focused surveys for least Bell’s vireo (*Vireo belli pusillus*) and other special-status riparian-dependant avifauna; (9) focused surveys for special-status reptiles; (10) focused surveys special-status raptors; (11) tree surveys pursuant to the City of Los Angeles Municipal Code; and (12) delineation of areas subject to the jurisdiction of the U.S. Army Corps of Engineers (“Corps”) and the California Department of Fish and Game (“CDFG”). During performance of all of the above-mentioned surveys, opportunistic observations of special-status species were recorded along with general floral and faunal observations.

Existing Conditions

The Canyon Hills project site, which is located in the City of Los Angeles, Los Angeles County [Exhibit 1], comprises approximately 887 acres and contains eight blue-line drainages (as depicted on the U.S. Geological Survey (USGS) topographic map Sunland, California [dated 1966 and photorevised in 1988] and Burbank, California [dated 1966 and photorevised in 1972]) [Exhibit 2]. The 56-acre Duke Property is adjacent to the Canyon Hills project site and, as noted above, for purposes of this study is combined with the project site to comprise the limits of the biological Study Area for the approximately 943-acre site. Elevations in the Study Area range from approximately 1,160 to 2,064 feet above sea level with topographic features such as hills and ridges, steep slopes, canyons, and small flats.

Vegetation Associations

Eleven vegetation associations were identified within the Study Area. Vegetation communities identified on the project site include: Mixed Chaparral (699.31 acres), Coastal Sage Scrub (75.41 acres), Deerweed (*Lotus scoparius*) Scrub (8.13 acres), Chamise/Coastal Sage Scrub Ecotone (8.9 acres) Mule Fat Scrub (0.66 acres), Chamise Chaparral (51.86 acres), Southern Mixed Riparian (24.59 acres), Southern Coast Live Oak Woodland (2.60 acres), Southern Coast Live Oak Riparian Forest (11.74 acres), Southern Willow Scrub (2.09 acres), and disturbed Ruderal Vegetation (1.63 acres). The Duke Property exhibits three vegetation types, including mixed chaparral (43.4 acres), Southern Coast Live Oak Woodland (11.0 acres), and Southern Coast Live Oak Riparian Forest (1.6 acres).

Sensitive Biological Resources

The Study Area supports three special-status plant species: ocellated Humboldt lily (*Lilium humboldtii* ssp. *ocellatum*-CNPS List 4), California black walnut (*Juglans californica* var. *californica* - CNPS List 4), and Plummer's mariposa lily (*Calochortus plummerae*, CNPS List 1B). Special-status vegetation associations include southern willow scrub (CDFG S.2.1) and Venturan coastal sage scrub (CDFG S.3.1). Special-status wildlife species observed in the Study Area include Cooper's hawk (*Accipiter cooperii*-CDFG Species of Special Concern), yellow-breasted chat (*Icteria virens*- CDFG Species of Special Concern), yellow warbler (*Dendroica petechia*-CDFG Species of Special Concern), and ashy rufous-crowned sparrow (*Aimophila ruficeps canescens*-CDFG Species of Special Concern). Although not observed during focused surveys, three special-status reptiles are assumed to occupy the Study Area: San Diego coast horned lizard (*Phrynosoma coronatum blainvillii*), silvery legless lizard (*Anniella pulchra pulchra*), and orange-throated whiptail (*Cnemidophorus hyperythrus*).

Corps and CDFG Jurisdiction

Corps jurisdiction at the project site totals approximately 6.46 acres, of which 400 square feet (0.009 acre) consist of jurisdictional wetlands. CDFG jurisdiction at the project site totals approximately 9.12 acres, of which approximately 6.49 acres consist of vegetated riparian habitat.

Impacts

Based on the site plan for the proposed project, approximately 304.77 acres of the project site would be disturbed and potentially impact biological resources. The 304.77 acres consist of (1) approximately 211.0 acres affected by grading and not revegetated, (2) approximately 46.43 acres subject to brush clearance, and (3) 47.34 acres would be subject to partial impacts associated with brush thinning within the fuel modification zone (provided that, as discussed below, the vegetation loss is limited to 50 percent within the brush-thinning zone). An additional 23.32 acres would be subject to remedial grading impacts, but would be revegetated with native species following remedial grading and would be preserved as natural open space.

Potentially significant impacts prior to mitigation include the loss of: (1) southern arroyo willow riparian forest; (2) trace amounts of Venturan coastal sage scrub affected by grading and approximately 1.62 acres affected by fuel modification; (3) 259.18 acres of mixed chaparral and 12.10 acres of chamise chaparral; (4) 78 individuals of the ocellated Humboldt lily; (5) 17 individuals of Plummer's mariposa lily; (6) a single small California black walnut; (7) native trees, including coast live oaks and western sycamores; (8) Corps jurisdiction totaling 2.06 acres, none of which qualifies as wetlands, and CDFG jurisdiction totaling 2.45 acres, of which 0.74 acre consists of riparian habitat; (9) southern mixed riparian forest located beyond the limits of CDFG jurisdiction, including permanent loss through grading of 1.96 acres and temporary loss of 1.21 acres during remedial grading that would be replanted; (10) southern coast live oak riparian forest located beyond the limits of CDFG jurisdiction, including permanent loss through grading of 0.55 acres and temporary loss of 0.15 acre during remedial grading that would be replanted following impacts; (11) 0.29 acre of southern willow scrub located beyond the limits of CDFG jurisdiction; (12) habitat occupied by the yellow warbler; (13) habitat occupied by the ashy-rufous crowned sparrow; and (14) habitat occupied by special-status reptiles.

Significant Impacts

Of the impacts identified above, implementation of the project would result in significant impacts to the following resources prior to mitigation: (1) up to 232 coast live oaks and 27 western sycamores; (2) Corps jurisdiction totaling 2.06 acres, none of which qualifies as wetlands, and CDFG jurisdiction totaling 2.45 acres, including 0.74 acre of riparian habitat; (3) southern mixed riparian forest located beyond the limits of CDFG jurisdiction, including permanent loss through grading of 1.96 acres and temporary loss of 1.21 acres during remedial grading that would be replanted; (4) southern coast live oak riparian forest located beyond the limits of CDFG jurisdiction, including permanent loss through grading of 0.55 acres and temporary loss of 0.15 acres during remedial grading that would be replanted; (5) 0.29 acres of southern willow scrub located beyond the limits of CDFG jurisdiction.

The impact of the proposed project on 259.18 acres of mixed chaparral would be a less-than significant impact.

Mitigation

Corps and CDFG Jurisdiction

The project applicant proposes to replace impacted Corps and CDFG jurisdiction, including jurisdictional riparian habitat as follows: (1) creation of approximately 2.5 acres of wetland and/or riparian habitat within a re-created water quality feature to be located in the lower portion of Drainage 4, and (2) preservation and enhancement of approximately 2.5 acres of streambed and associated riparian habitat in the onsite reach of La Tuna Canyon Wash. The proposed mitigation would provide for an approximately 2:1 mitigation ratio for CDFG jurisdiction and

almost 2.5:1 for Corps jurisdiction. The mitigation and monitoring plan described in Section 6.1.1 will be subject to approval by the Corps, CDFG, and the Regional Water Quality Control Board.

For permanent impacts to southern mixed riparian forest (1.96 acres), southern coast live oak riparian forest (0.55 acre) and southern willow scrub (0.29 acres) totaling 2.8 combined acres, mitigation will be provided at a minimum of a 1:1 ratio (2.8 acres) through native riparian plantings within onsite detention basins and water quality basins. Mitigation for temporary impacts to 1.21 acres of southern mixed riparian forest and 0.15 acre of southern coast live oak riparian forest will be provided through revegetation or the areas subject to temporary impacts.

Native Trees

The applicant proposes to mitigate for the loss of up to 232 native coast live oaks and 27 western sycamore trees as described in Sections 6.1.2. An evaluation of the both open space and the proposed development area has identified the following opportunities for onsite replacement: entry points (15 coast live oaks), parks and common areas (205 coast live oaks), road right-of-ways (515 coast live oaks), detention basins (60 coast live oaks and 90 western sycamores), slopes (100 coast live oaks), flood control (60 coast live oaks and 91 western sycamores), fuel modification areas (365 coast live oaks), private lots (250 coast live oaks) and the proposed equestrian trail (200 coast live oaks). The tree sizes would vary based on the location and visibility, ranging from acorns to trees in 72-inch boxes.

Active Bird Nests

If construction occurs during the nesting season, then prior to construction activities, the project applicant shall have a qualified biologist survey the project site for the presence of any occupied raptor nests. If such a nest is found, it shall be protected until nesting activity has ended to ensure compliance with Section 3503.5 of the California Fish and Game Code. In addition, if grading or clearing of vegetation is scheduled to take place during the nesting season for migratory birds (March 15-August 15), a qualified biologist will survey areas to be graded no more than three days prior to the start of work. If active nests of migratory birds are located, measures to ensure protection of the nesting migratory bird will be determined by the monitoring biologist and will depend on factors such as the bird species and the construction schedule.

Significance After Mitigation

The proposed project has been designed to avoid and/or minimize impacts to biological resources to the maximum extent practicable. Mitigation for adverse impacts associated with the project will ensure the long-term viability of biological resources associated with the project site. With implementation of the mitigation measures described above, the proposed project would not have any significant impacts on biological resources, with the exception of native trees. With implementation of the mitigation measures described above with respect to the loss of up to 232 coast live oaks and 27 western sycamores, the proposed project would not have a significant long-term impact on native trees. The growth and development of the replacement coast live oaks and western sycamores over a period of 10 to 20 years would be sufficient to provide seed production

and nesting opportunities in the replacement tree stock to compensate fully for the loss of the mature trees that would be impacted by the project. However, in the near-term (i.e., the first ten years following the planting and replacement tree stock), the proposed project's impact on native trees would be considered significant.

1.0 INTRODUCTION

Biological surveys were conducted from March 2002 to February 2003 within the Study Area, which includes the 887-acre project site and the 56-acre Duke Property. Biologists, regulatory specialists, a certified arborist from Glenn Lukos Associates, Inc. (GLA), and a Registered Consulting Arborist from Dudek and Associates (Dudek) conducted all of the surveys. The Study Area supports native habitats, including shrublands, woodlands and limited areas of disturbed non-native grasslands. Native vegetation communities include southern arroyo willow riparian, southern coast live oak- sycamore woodland, Venturan coastal sage scrub, mixed chaparral, and chaparral-sage scrub ecotone. Non-native associations include ruderal roadside vegetation. No federally- or state-listed threatened or endangered plant or animal species were detected/identified onsite.

The proposed project is described in detail in the Draft Environmental Impact Report prepared for the project. The layout of the proposed development is depicted on the Site Plan, which is superimposed over the vegetation community map [Exhibit 3]. The proposed project is designed for 280 single-family residential lots on the project site. One of the alternatives for the project includes roadway access across the Duke Property (the "Duke Access Alternative"), which is the reason for including the Duke Property in the biological survey efforts.

2.0 METHODS AND SURVEY LIMITATIONS

Data regarding biological resources in the Study Area were obtained through literature review and field investigations. The field surveys were conducted beginning in March 2002, continuing through May 2003. Focused surveys for special-status species and vascular plants were generally limited to the proposed development area on the project site and the areas affected by the access road on the adjacent Duke Property, extending approximately 300 to 500 feet beyond the grading limits to account for potential indirect impacts. Focused surveys for special-status lichens were conducted across the Study Area.

2.1 Literature Review

Sensitive biological resources present, or potentially present were identified through a literature review using the following sources: U.S. Fish and Wildlife Service ("USFWS")¹; California

¹ U.S. Fish and Wildlife Service. 1997. USFWS: Presence/Absence Survey Guidelines for the Coastal California Gnatcatcher, 28 July.

Department of Fish and Game^{2,3,4}; California Natural Diversity Data Base (CNDDDB)^{5,6}; the California Native Plant Society,⁷ Rancho Santa Ana Botanic Garden,⁸ Lichens of the Greater Sonoran Desert Region,⁹ and the California Lichen Society¹⁰. Field guides and other literature pertinent to the project area were also consulted.

A broad "literature review" was conducted relative to wildlife movement, including documents that address general characteristics of wildlife movement and theories regarding corridor requirements, as well as documents specific to the region. The review included the following: field guides; scientific papers; symposia proceedings^{11,12}; Master Theses¹³; letters responding to the Notice of Preparation regarding preparation of the DEIR for the proposed project¹⁴; personal communication with Paul Edelman¹⁵ of the Santa Monica Mountains Conservancy and Paul Beier,¹⁶ a national expert on wildlife movement at Northern Arizona University; EIRs prepared for projects in northern and western Los Angeles County and eastern Ventura County; wildlife movement studies prepared for projects in the region¹⁷; and other pertinent documents.¹⁸ Where

² California Department of Fish and Game. 1988. *California's Wildlife*. Volume I: Amphibians and Reptile. State of California Resources Agency. Sacramento, California.

³ California Department of Fish and Game. 1990. *California's Wildlife*. Volume II: Birds. State of California Resources Agency. Sacramento, California.

⁴ California Department of Fish and Game. 1990. *California's Wildlife*. Volume III: Mammals. State of California Resources Agency. Sacramento, California.

⁵ California Natural Diversity Data Base (CNDDDB). 2002. Element reports for the Burbank and Sunland 7.5' USGS Quadrangles. Heritage section, California Department of Fish and Game.

⁶ California Natural Diversity Data Base (CNDDDB). 2002. List of Special Plants. California Department of Fish and Game, Sacramento. January, Biannual Publication.

⁷ Tibor, David. 2001. California Native Plant Society's Inventory of Rare and Endangered Plants of California. California Native Plant Society Special Publication No. 1, Sixth Edition, Sacramento, CA.

⁸ Soza, V. and LeRoy Gross. 2002. Preliminary Checklist for the Verdugo Mountains and San Rafael Hills, Los Angeles County. Herbarium, Rancho Santa Ana Botanic Garden, Claremont, CA. Unpublished checklist.

⁹ Nash, T.H. III, B.D. Ryan, C. Gries, and F. Bungartz. 2002. Lichen Flora of the Greater Sonoran Desert Region. Vol I: the pyrenolichens and most squamulose and macrolichens. Lichens Unlimited, Arizona State University, Tempe.

¹⁰ Magney, D. 1999. Preliminary list of rare California lichens. Bulletin of the California Lichen Society 6: 22-27.

¹¹ Swift, C., A. Collins, H. Gutierrez, H. Lam, and I. Ratiner. 1993. Habitat linkages in an urban mountain chain. In *Interface between ecology and land development in California*. Edited by J. E. Keeley. Southern California Academy of Sciences, Los Angeles.

¹² Beier, P. 1992. Cougars, corridors and conservation. Abstracts of the annual meeting of the Southern California Academy of Sciences, Los Angeles, CA.

¹³ Lyren, L. M. 2001. Movement patterns of coyotes and bobcats relative to roads and underpasses in the chino hills area of southern California. Masters Thesis. California State Polytechnic University, Pomona.

¹⁴ Santa Monica Mountains Conservancy. September 23, 2002. Comment Letter addressed to Maya Zaitzevsky.

¹⁵ Edelman, Paul. 2002. Personal Communication with Jeff Ahrens of GLA via email regarding lack of Mountain Lion sightings in Verdugo Mountains.

¹⁶ Beier, Paul. 2002. Personal Communication with Jeff Ahrens of GLA via email regarding lack of radio-collared Mountain Lions in Verdugo Mountains.

¹⁷ Envicom Corporation. 1993. *A Consideration of Wildlife Movement in the Santa Susana Mountains*. Prepared for HMDI, Inc. Los Angeles California. Envicom Corporation. 1993. *A Study of Wildlife Movement in Dry Canyon*. Prepared for HMDI, Inc. Los Angeles California.

appropriate, information provided by local residents regarding observations of large mammals such as bobcats, coyotes and the American badger was also included.¹⁹

2.2 Field Reconnaissance

Field studies focused on a number of primary objectives: (1) vegetation mapping; (2) floristic surveys for vascular plants; (3) floristic surveys for lichens; (4) special-status plant surveys; (5) special-status lichen surveys; (6) a detailed wildlife movement study [attached as Appendix A] (7) focused surveys for the coastal California gnatcatcher (*Polioptila californica californica*) and other special-status scrub-dependant avifauna; (8) focused surveys for least Bell's vireo (*Vireo belli pusillus*) and other special-status riparian-dependant avifauna; (9) focused surveys for special-status reptiles; (10) focused surveys special-status raptors; (11) tree surveys pursuant to the City of Los Angeles Municipal Code [attached as Appendix B]; and (12) delineation of areas subject to the jurisdiction of the U.S. Army Corps of Engineers (Corps) and the California Department of Fish and Game (CDFG) [attached as Appendix C]. During performance of all of the above-mentioned surveys, opportunistic observations of special-status species were recorded along with general floral and faunal observations.

2.2.1 Vegetation Mapping

Vegetation associations were mapped in the field directly onto acetate overlays of a 200-scale color aerial photograph of the project site and Duke Property. Vegetation associations were mapped based upon descriptions provided by Holland²⁰ with, as appropriate, modifications to more accurately characterize site conditions. Vegetation mapping was conducted during April and May of 2002 and refined during subsequent field visits. Exhibit 3 depicts the vegetation communities identified in the field.

2.2.2 Vascular Flora

All plant species encountered during the field surveys were identified and recorded following the guidelines adopted by CNPS and CDFG, as described by Nelson²¹. Scientific nomenclature and common names used in this report follow Hickman²². When not available in Hickman, common

¹⁸ Noss, R.F. 2001. *Final Report to Los Angeles and San Gabriel River Watershed Council, Task 3: Final Conservation Strategy and Map of Corridor Opportunities*.

¹⁹ Crouch, Steve. 2003. Mr. Crouch, who is associated with the conservation group Canyon Area Preservation (or "CAP"), provided a list of species he has allegedly observed on or in the vicinity of the project site to Jeff Ahrens at GLA via email.

²⁰ Holland, R. F. 1986. Preliminary Descriptions of the Terrestrial Natural Communities of California. Non-Game Heritage Program. California Department of Fish and Game. Sacramento, California.

²¹ Nelson, J. R. 1994. Guidelines for Assessing Effects of Proposed Developments on Rare Plants and Plant Communities, In California Native Plant Society's Inventory of Rare and Endangered Vascular Plants of California, eds. M. W Skinner and B. M. Pavlik, California Native Plant Society Special Publication Number 1, 5th edition, Sacramento, California.

²² Hickman, J. C., Ed. 1993. *The Jepson Manual: Higher Plants of California*. University of California Press. Berkeley, California.

names are taken from McAuley²³, Roberts²⁴, or Beauchamp²⁵. A complete list of the plant species observed during the surveys is provided in Appendix D.

2.2.3 Lichen Flora

Lichen species encountered during the field surveys were identified and recorded following standard practices, and guidelines and micro-site observation described by Neele²⁶ for the San Gabriel Mountains. Scientific nomenclature used in this report follows Nash et al. A list of the lichen species collected and/or observed during the project surveys is provided in Appendix D.

2.2.4 Special-Status Plant Surveys

Focused surveys were conducted for the 39 special-status plant species that were determined to have even minimal potential to occur in the Study Area. The following table provides each species and its status. The locations of sensitive plant species are provided on Exhibit 4.

**TABLE 1
SPECIAL-STATUS SPECIES
CONSIDERED FOR FOCUSED PLANT SURVEYS**

BOTANICAL NAME	COMMON NAME	STATUS
<i>Astragalus brauntonii</i>	Braunton's milk-vetch	Federal: Endangered State: none CNPS: List 1B
<i>Atriplex coulteri</i>	Coulter's Saltbush	Federal: none State: none CNPS: List 1B
<i>Atriplex parishii</i>	Parish's saltscale	Federal: none State: none CNPS: List 1B
<i>Berberis nevinii</i>	Nevin's barberry	Federal: Endangered State: Endangered CNPS: List 1B
<i>Chorizanthe parryi</i> var.	San Fernando Valley	Federal: Candidate

²³ McAuley, M. 1985. *Wildflowers of the Santa Monica Mountains*. Canyon Publishing Co. Canoga Park, California.

²⁴ Roberts, Fred M. Jr. 1998. *A Checklist of the Vascular Plants of Orange County, California*, 2nd ed. F.M. Roberts Publications, Encinitas, California.

²⁵ Beauchamp, R. M. 1986. *A Flora of San Diego County, California*. Sweetwater River Press. National City, California.

²⁶ Neele, M. 1988. *Lichens and air pollution in the San Gabriel Wilderness, Angeles National Forest, California*. Earth Resources Monograph 13; 53 pp. Forest Service/USDA Region 5.

BOTANICAL NAME	COMMON NAME	STATUS
<i>Fernandina</i>	spineflower	State: Candidate CNPS: List 1B
<i>Dodecahema leptoceras</i>	Slender-horned spineflower	Federal: Endangered State: Endangered CNPS: List 1B
<i>Aster greatae</i>	Greata's aster	Federal: none State: none CNPS: List 1B
<i>Baccharis malibuensis</i>	Malibu baccharis	Federal: none State: none CNPS: List 1B
<i>Boykinia rotundifolia</i>	Round-leaved boykinia	Federal: none State: none CNPS: considered but rejected (too common)
<i>Calochortus catalinae</i>	Catalina mariposa lily	Federal: none State: none CNPS: List 4
<i>Calochortus clavatus</i> var. <i>gracilis</i>	Slender mariposa lily	Federal: none State: none CNPS: List 1B
<i>Calochortus plummerae</i>	Plummer's mariposa lily	Federal: none State: none CNPS: List 1B
<i>Calystegia peirsonii</i>	Peirson's Morning-Glory	Federal: none State: none CNPS: List 4
<i>Chorizanthe parryi</i> var. <i>parryi</i>	Parry's spineflower	Federal: none State: none CNPS: List 3
<i>Convolvulus simulans</i>	Small-Flowered Morning Glory	Federal: none State: none CNPS: List 4
<i>Deinandra minthornii</i>	Santa Susana Tarplant	Federal: none State: none CNPS: List 1B
<i>Dudleya densiflora</i>	San Gabriel Mountains dudleya	Federal: none State: none CNPS: List 1B
<i>Dudleya multicaulis</i>	Many-stemmed dudleya	Federal: none

BOTANICAL NAME	COMMON NAME	STATUS
		State: none CNPS: List 1B
<i>Harpagonella palmeri</i>	Palmer's Grappling Hook	Federal: none State: none CNPS: List 4
<i>Juglans californica</i> var. <i>californica</i>	Southern California black walnut	Federal: none State: none CNPS: List 4
<i>Juncus acutus</i> ssp. <i>leopoldi</i>	Southwestern spiny rush	Federal: none State: none CNPS: List 4
<i>Microseris douglasii</i> var. <i>platycarpa</i>	Small-flowered microseris	Federal: none State: none CNPS: List 4
<i>Nolina cismontana</i>	Chaparral Bear Grass	Federal: none State: none CNPS: List 1B
<i>Quercus engelmannii</i>	Engelmann oak	Federal: none State: none CNPS: List 4
<i>Lepechinia fragrans</i>	Fragrant pitcher sage	Federal: none State: none CNPS: List 4
<i>Lepidium virginicum</i> var. <i>robinsonii</i>	Robinson's pepper grass	Federal: none State: none CNPS: List 1B
<i>Lilium humboldtii</i> ssp. <i>ocellatum</i>	Ocellated Humboldt lily	Federal: none State: none CNPS: List 4
<i>Pentachaeta aurea</i>	Golden-rayed daisy	Federal: none State: none CNPS: List 4
<i>Pentachaeta lyonii</i>	Lyon's pentachaeta	Federal: Endangered State: Endangered CNPS: List 1B
<i>Piperia cooperi</i>	Chaparral rein orchid	Federal: none State: none CNPS: List 4
<i>Polygala cornuta</i> var. <i>fishiae</i>	Fish's milkwort	Federal: none State: none CNPS: List 4
<i>Senecio aphanactis</i>	Rayless ragwort	Federal: none

BOTANICAL NAME	COMMON NAME	STATUS
		State: none CNPS: List 2
<i>Sidalcea neomexicana</i>	Salt spring checker bloom	Federal: none State: none CNPS: List 2
<i>Thelypteris puberula</i> var. <i>sonorensis</i>	Sonoran maiden fern	Federal: none State: none CNPS: List 2
<i>Malacothamnus davidsonii</i>	Davidson's bushmallow	Federal: none State: none CNPS: List 1B
<i>Castilleja gleasonii</i>	Mt. Gleason Indian paintbrush	Federal: none State: Rare CNPS: List 1B
<i>Helianthus nuttallii</i> ssp. <i>parishii</i>	Los Angeles sunflower	Federal: none State: none CNPS: List 1A
<i>Ribes divaricatum</i> var. <i>parishii</i>	Parish's gooseberry	Federal: none State: none CNPS: List 1B
<i>Romneya coulteri</i>	Coulter's matilija poppy	Federal: none State: none CNPS: List 4
<i>Calandrinia breweri</i>	Brewer's calandrinia	Federal: none State: none CNPS: List 4

2.2.4.1 California Native Plant Society

The CNPS is a private plant conservation organization dedicated to the monitoring and protection of sensitive species in California. The California Native Plant Society's Sixth Edition of the *California Native Plant Society's Inventory of Rare and Endangered Plants of California* separates plants of interest into five categories. CNPS has compiled an inventory comprised of the information focusing on geographic distribution and qualitative characterization of Rare, Threatened, or Endangered vascular plant species of California. The list serves as the candidate list for listing as Threatened and Endangered by CDFG. CNPS has developed five categories of rarity that are summarized in Table 2.

2.2.5 Special-Status Lichen Surveys

Focused surveys were conducted for 63 lichen species. These included 20 of the 38 lichen species proposed as rare by Magney²⁷ based on even minimal potential to occur onsite, as well as 24 species proposed for special-status listing by the California Lichen Society (http://128.32.109.44/red_page.html), 19 species thought to be rare, uncommon and/or limited in distribution to intermediate elevations and/or montane areas of southern California according to Hale and Cole²⁸, Brodo et al²⁹, and Nash et al. (2002), and one species reported from the San Gabriel Mountains and new to North America. Table 3 below provides a list of all lichen species considered for focused surveys.

TABLE 2
SUMMARY OF CNPS LISTS 1, 2, 3, & 4

CNPS List	Comments
List 1A – Presumed Extinct in California	Thought to be extinct in California based on a lack of observation or detection for many years.
List 1B – Rare or Endangered in California and Elsewhere	Species generally rare throughout their range that are also judged to be vulnerable to other threats such as declining habitat.
List 2 – Rare or Endangered in California, More Common Elsewhere	Species rare in California but more common outside of California.
List 3 – Need More Information	Species that are thought to be rare or in decline, but CNPS lacks the information needed to assign to the appropriate list. In most instances, the extent of surveys for these species is not sufficient to allow CNPS to accurately assess whether these species should be assigned to a specific list. In addition, many of the List 3 species have associated taxonomic problems such that the validity of their current taxonomy is unclear.
List 4 – Plants of Limited Distribution	Species that are currently thought to be limited in distribution or range whose vulnerability or susceptibility to threat is currently low. In some cases, as noted above for List 3 species above, CNPS lacks survey data to accurately determine status in California. Many species have been placed on List 4 in previous editions of the “Inventory” and have been removed as survey data has indicated that the species are more common

²⁷ Magney, D. 1999. Preliminary list of rare California lichens. Bulletin of the California Lichen Society 6: 22-27.

²⁸ Hale, M. and M. Cole. 1988. Lichens of California. University of California Press, Berkeley.

²⁹ Brodo, I., S. Duran Sharnoff, and S. Sharnoff. 2001. Lichens of North America. Yale University Press. 532 pgs.

CNPS List	Comments
	than previously thought. CNPS recommends that species currently included on this list should be monitored to ensure that future substantial declines are minimized.

**TABLE 3
LICHEN SPECIES INCLUDED IN FOCUSED SURVEYS**

Lichens proposed as rare by Magney (1999)
<i>Bacidina californica</i>
<i>Caloplaca subpyraceella</i>
<i>Cyphelium brunneum</i>
<i>Gyalecta herrei</i>
<i>Lecania cyathiformis</i>
<i>Phaeophyscia decolor</i>
<i>Phaeophyscia kairamoi</i>
<i>Phaeophyscia sciastra</i>
<i>Protoparmelia badia</i>
<i>Punctelia punctilla</i>
<i>Pyrrhospora russula</i>
<i>Rhizocarpon concentricum</i>
<i>Teloschistes exilis</i>
<i>Teloschistes flavicans</i>
<i>Texosporium sancti-jacobi</i>
<i>Toninia submexicana</i>
<i>Toninia verrucarioides</i>
<i>Xanthoparmelia angustiphylla</i>
<i>Xanthoparmelia californica</i>
<i>Xanthoparmelia mougeotii</i>
Lichens proposed for listing by the California Lichen Society
<i>Aspicilia californica</i>
<i>Caloplaca ignea</i>
<i>Cladonia conista</i>
<i>Cladonia pulvinella</i>
<i>Cladonia squamosa</i>
<i>Dimelaena californica</i>
<i>Hydrothyria venosa</i>
<i>Lecanora collatolica</i>
<i>Lecanora mellea</i>
<i>Massalongia microphylliza</i>
<i>Mobergia angelica</i>
<i>Peltula michoacanensis</i>

<i>Peltula richardsii</i>
<i>Pertusaria velata</i>
<i>Pertusaria pseudocorallina</i>
<i>Placidium (Catapyrenium) acarosporoides</i>
<i>Placopyrenium (Catapyrenium) caeruleopulvinum</i>
<i>Placopyrenium (Catapyrenium) heppioides</i>
<i>Ramonia ablephora</i>
<i>Rhizoplaca glaucophana</i>
<i>Rhizoplaca marginalis</i>
<i>Staurothele monicae</i>
<i>Thelenella weberi</i>
<i>Thelopsis isiaca</i>
Lichens identified as rare, uncommon, or of limited distribution to mid-elevations and/or montane areas of Southern California
<i>Fuscopannaria pulveracea</i>
<i>Leptochidium albociliatum</i>
<i>Pertusaria albescens</i>
<i>Physcia Americana</i>
<i>Physcia halei</i>
<i>Physcia neglecta</i>
<i>Physcia poncinsii</i>
<i>Physconia leucoleiptes</i>
<i>Polychidium muscicola</i>
<i>Pseudephebe pubescens</i>
<i>Psora globifera</i>
<i>Psora hyporubescens</i>
<i>Psora pacifica</i>
<i>Psora tuckermanii</i>
<i>Rhizoplaca subdiscrepens</i>
<i>Thelenella hassei</i>
<i>Thelenella modesta</i>
<i>Thelenella sychogonioides</i>
<i>Xanthoparmelia lavicola</i>
Additional lichen species considered for focused surveys
<i>Xanthoparmelia pertinax</i>

Of the above-mentioned species, only one of them (*Texosporium sancti-jacobi*) is additionally listed as a CDFG Species of Special Concern (SPOC). In comparison, only six of all lichen species occurring statewide are listed as special taxa by CDFG.

2.2.6 General Wildlife Surveys

Wildlife species, as detected during field surveys by sight, calls, tracks, scat, or other sign were recorded. In addition to species actually observed, expected wildlife usage of the Study Area was

determined according to known habitat preferences of regional wildlife species and knowledge of their relative distributions in the area. A complete list of wildlife species observed or detected in the Study Area is provided in Appendix D.

Scientific nomenclature and common names for vertebrate species referred to in this report follow Collins³⁰ for amphibians and reptiles, Jones, et al., for mammals³¹ and AOU Check-list for birds³².

2.2.7 Special-Status Animals

Focused surveys or a habitat assessment were conducted for the 31 special-status animal species that were determined to have even minimal potential to occur in the Study Area. The following table provides each species and its status evaluated in this report. Exhibit 4 depicts the locations of special-status animals identified during the surveys.

**TABLE 4
SPECIAL-STATUS ANIMAL SPECIES EVALUATED IN THIS REPORT**

Scientific Name	Common Name	Legal Status
Birds		
<i>Accipiter cooperii</i>	Cooper's Hawk	Federal: none State: SPOC
<i>Aimophila ruficeps canescens</i>	Ashy Rufous-Crowned Sparrow	Federal: none State: SPOC
<i>Campylorhynchus brunneicapillus anthonyi</i>	Cactus Wren	Federal: none State: SPOC
<i>Chaetura vauxi</i>	Vaux's Swift	Federal: SPOC State: SPOC
<i>Circus cyaneus</i>	Northern Harrier	Federal: none State: SPOC
<i>Dendroica petechia</i>	Yellow Warbler	Federal: none State: SPOC
<i>Eremophila alpestris actia</i>	California Horned Lark	Federal: none State: SPOC
<i>Elanus leucurus</i>	White-Tailed Kite	Federal: SPOC State: Fully Protected

³⁰ Collins, J. T. 1997. Standard common and scientific names for North American amphibians and reptiles. *Herpetological Circular* (25), 4th ed. Society for the Study of Amphibians and Reptiles, Lawrence, Kansas.

³¹ Jones, J. K., R. S. Hoffman, D. W. Rice, C. Jones, R. S. Baker, and M. D. Engstrom. 1992. Revised Checklist of North American Mammals North of Mexico, 1991. *Occasional Papers* The Museum Texas Tech University (146):1-23.

³² [AOU] American Ornithologists' Union. 1998. *Check-list of North American Birds*. 7th ed. American Ornithologists' Union, Washington, DC.

Scientific Name	Common Name	Legal Status
<i>Empidonax traillii extimus</i>	Southwestern Willow Flycatcher	Federal: Endangered State: none
<i>Icteria virens</i>	Yellow-Breasted Chat	Federal: none State: SPOC
<i>Lanius ludovicianus</i>	Logger-Head Shrike	Federal: SPOC State: SPOC
<i>Polioptila californica californica</i>	Coastal California Gnatcatcher	Federal: Threatened State: SPOC
<i>Vireo belli pusillus</i>	Least Bell's Vireo	Federal: Endangered State: Endangered
<u>Mammals</u>		
<i>Lepus californicus bennettii</i>	San Diego Black-Tailed Jackrabbit	Federal: none State: SPOC
<u>Reptiles and Amphibians</u>		
<i>Anniella pulchra pulchra</i>	Silvery Legless Lizard	Federal: SPOC State: SPOC
<i>Bufo microscaphus californicus</i>	Arroyo Southwestern Toad	Federal: Endangered State: SPOC
<i>Cnemidophorus hyperythrus beldingi</i>	Orange-Throated Whiptail	Federal: none State: SPOC
<i>Cnemidophorus tigris multiscutatus</i>	Coastal Western Whiptail	Federal: none State: Special Animal
<i>Crotalus ruber ruber</i>	Northern Red-Diamond Rattlesnake	Federal: none State: SPOC
<i>Clemmys marmorata pallida</i>	Southwestern Pond Turtle	Federal: SPOC State: SPOC
<i>Phrynosoma coronatum blainvillei</i>	San Diego Horned Lizard	Federal: none State: SPOC
<i>Rana aurora draytoni</i>	Red-Legged Frog	Federal: Threatened State: SPOC
<i>Rana muscosa</i>	Mountain Yellow-Legged Frog	Federal: Endangered State: SPOC
<i>Scaphiopus hammondii</i>	Western Spadefoot Toad	Federal: SPOC State: SPOC
<i>Taricha torosa torosa</i>	Coast Range California Newt	Federal: none State: SPOC
<i>Thamnophis hammondii</i>	Two-Striped Garter Snake	Federal: none State: SPOC
<u>Fish</u>		
<i>Catostomus santaanae</i>	Santa Ana Sucker	Federal: Threatened State: SPOC

Scientific Name	Common Name	Legal Status
<i>Gila Orcutti</i>	Arroyo Chub	Federal: none State: SPOC
<i>Rhinichthys osculus</i>	Santa Ana Speckled Dace	Federal: none State: SPOC
Invertebrates		
<i>Streptocephalus woottoni</i>	Riverside Fairy Shrimp	Federal: Endangered State: none
<i>Branchinecta lynchii</i>	Vernal Pool Fairy Shrimp	Federal: Endangered State: none
<i>Branchinecta sandiegonensis</i>	San Diego Fairy Shrimp	Federal: Endangered State: none

2.2.8 Wildlife Movement

GLA conducted wildlife movement surveys from March to December 2002 within the approximately 887-acre Canyon Hills project site, the adjacent 56-acre Duke Property, and other offsite areas such as Tujunga Wash and areas between Tujunga Wash and the northwest corner of the project site (which collectively comprise the "Wildlife Movement Study Area"). A detailed description of the methodology used for the wildlife movement study is provided in a detailed wildlife movement study attached as Appendix A. GLA biologists who conducted the surveys inspected the wildlife movement Study Area for evidence of wildlife concentration and movement during all visits. GLA biologists experienced in conducting wildlife movement studies mapped wildlife movement paths or potential paths as indicated by the presence of characteristics of regular wildlife movement or usage. Such characteristics include (a) direct observation of target species, (b) remains of dead animals, (c) tracks, (d) scat, (e) unusually heavy presence of ticks and (f) browsed vegetation along existing wildlife trails, roads and firebreaks. Track stations were also installed and monitored at selected key locations such as the culverts beneath Interstate 210 and La Tuna Canyon Road and on wildlife trails. The surveys identified and mapped all locations of field evidence of wildlife movement or usage (e.g., scat, tracks, etc.). Exhibit 5 depicts the location of all documented field indicators by type.

In addition to the focused surveys of the project site and Duke Property described above, other portions of the Wildlife Movement Study Area beyond the limits of the project site and Duke Property were carefully surveyed in the ways noted above for wildlife or their sign, including (a) both sides of La Tuna Canyon Road (e.g., shoulders, pathways or walkways, etc.) west and east of Interstate 210, (b) four culverts linking La Tuna Canyon Park to the project site to the south, (c) the La Tuna Canyon Park access road and associated wildlife trails adjacent to the parking area immediately south of Interstate 210 along La Tuna Canyon Road, the La Tuna Canyon Road underpass and Lehman underpass to the west, (d) the La Tuna Canyon Wash east of La Tuna Dam just west of the site, (e) various points along Sunland Boulevard northwest of the site, (f) the Green Verdugo Fire Road entrance from Sunland Boulevard, (g) Nohles Drive between Sunland Boulevard and Wentworth Street, (h) Wentworth Street east and west of Interstate 210,

adjacent residential access streets between Wentworth Street and Tujunga Wash, (i) Interstate 210 off-ramps and on-ramps between the Lehman and Wheatland eastbound off-ramp, (j) westbound shoulder lanes of Interstate 210 from Sunland/Foothill Boulevard to La Tuna Canyon Road, the narrow strip between the west side of Interstate 210 and existing development between Tujunga Wash and Sunland/Foothill Boulevard, and Haines Canyon Avenue and associated side streets with access to the east side of the project site.

GLA biologists also conducted a detailed analysis of the area characterized as a “Missing Link” [see Exhibit 6] in order to identify potential movement paths or routes through developed areas between Tujunga Wash and the northwest corner of the project site that exhibit potential paths used for regional movement. This analysis was conducted on foot, searching for sign of wildlife movement between Tujunga Wash and the project site. This included both sides of Interstate 210. However, initial surveys on the north side of Interstate 210 detected no sign of wildlife movement (not even coyotes sign was detected) and most of the survey efforts were focused on the south side of Interstate 210. A detailed description of the potential paths (and obstacles) that an animal would have to negotiate in traveling from Tujunga Wash to the project site is provided in Appendix A.

2.2.9 Focused Surveys for California Gnatcatcher

An initial reconnaissance survey and examination of aerial photography of the Study Area was conducted to review site access, to qualify vegetation types, and estimate the extent of CSS and CSS/chaparral ecotone habitats potentially suitable for use by the coastal California gnatcatcher. Areas of potential gnatcatcher habitat within the proposed development areas and portions of the Duke Property in the vicinity of a potential access road were divided into four habitat survey polygons covering less than 80 acres each.

Protocol surveys for the California gnatcatcher were performed in all suitable CSS and CSS/chaparral habitats identified within the proposed development areas and vicinity of the potential Duke Property access road according to the 1997 guidelines issued by the (U.S. Fish and Wildlife Service) (USFWS), which stipulate that six visits shall be conducted within areas of suitable habitat with at least seven days between site visits when the surveys are conducted during the breeding season.³³ All surveys were conducted during the morning hours and were completed prior to 12:00 P.M. Each biologist per day surveyed no more than 80 acres, and no surveys were conducted during windy (>15 miles per hour), rainy, or extremely hot (>95°F) conditions. The protocol presence/absence surveys conducted within suitable CSS and CSS/chaparral ecotone habitats were performed six times between April 29, 2002 and June 5, 2002. Biologists Tony Bomkamp (TE-825679), Rick Riefner (TE-827494-1), and Jeff Ahrens (PRT-0521590) performed the field surveys. These surveys also covered adjacent vegetation communities where appropriate. During performance of the focused surveys for the California gnatcatcher, surveys were also performed for the ashy-rufous crowned sparrow and Bell’s sage sparrow as these species generally occur in the same types of habitat.

³³ U.S. Fish and Wildlife Service. 1997. Coastal California Gnatcatcher (*Polioptila californica californica*). Presence/Absence Survey Guidelines, February 28, 1997.

2.2.10 Least Bell's Vireo Surveys

Protocol surveys for least Bell's vireo were performed in areas of marginally potential habitat associated with Drainage 4³⁴ and areas of riparian habitat associated with La Tuna Canyon Wash potentially affected by bridges proposed to cross the drainage. Surveys were conducted according to guidelines issued by USFWS in 2000. The guidelines stipulate that surveys be conducted between April 10 and July 31 in all areas of suitable habitat. Eight survey visits are required and the surveys are to be conducted at least 10 days apart. Surveys were conducted between 6:00 and 11:00 a.m., by GLA biologists Tony Bomkamp and Jeff Ahrens in accordance with the survey guidelines. During surveys for least Bell's vireo, surveys for other species-status avifauna, including the yellow-breasted chat and yellow warbler, were performed.

2.2.11 Sensitive Reptile Surveys

Surveys for the San Diego horned lizard (*Phrynosoma coronatum blainvillei*), and orange-throated whiptail (*Cnemidophorus hyperythrus*), were conducted during the spring and summer of 2002. Field surveys were performed by GLA biologists Jeff Ahrens (SC-5820) and/or Justin Meyer. Focused reptile surveys were conducted in such a manner as to allow inspection of those areas most likely to support the above-mentioned species. Due to the intense heat experienced early in the day at the Study Area, GLA biologists conducted focused reptile surveys approximately one hour before dusk, when temperature regimes were more conducive to reptile activity. Early afternoon surveys were conducted if temperature regimes were conducive to reptile activity. Surveyors traversed La Tuna Canyon, Drainage 4, areas of Riversidian sage scrub, open areas associated with scrub, rocky outcrops, disturbed areas adjacent to native vegetation, and along wildlife trails and access roads. All reptile species were recorded.

2.2.12 Raptors

Surveys for special-status raptors were conducted in concert with the surveys for the California gnatcatcher, least Bell's vireo and rufous-crowned sparrow.

2.2.13 Tree Surveys

The tree inventory was conducted on June 4, 19, July 1, 10, 12, 16, 17, 19, 23, 24, 25, August 7, 8, 14, 15, 22, December 18, 27, and 30, 2002, and January 30, 31 and February 3, 2003 by Greg Everett, certified arborist (certification number WE-3977A), Rick Riefner, botanist, Dave Moskovitz, botanist, Justin Meyer, biologist, and Jeff Ahrens, biologist, and Martin Rasnick, Regulatory Specialist of Glenn Lukos Associates, Inc. Mr. Everett served as lead arborist for these surveys. Tom Larson of Dudek Associates, a Registered Consulting Arborist, has also inspected the project site and participated in the preparation of the tree survey report.

³⁴ Glenn Lukos Associates. 2003. Letter Report to Chris Josephs: Jurisdictional Delineation of Canyon Hills in the City of Los Angeles, Los Angeles County, California. The convention used for the project to name the drainages (e.g., Drainage 4) is set forth in the delineation report.

Prior to commencement of field studies, existing maps and aerial photographs of the Study Area were reviewed to ensure that all areas with potential for supporting trees were examined. For this purpose, the Study Area consists of the proposed development areas on the project site and the proposed access road alignment site on the Duke Property, and incorporates a 100-foot-wide buffer zone extending outward from the edge of the development and road alignment footprints. However, two exceptions to the 100-foot-study-area rule exist:

1. The 100-foot buffer zone extended beyond the Canyon Hills property line at the proposed equestrian park site along La Tuna Canyon Road at the southwest portion of the project site. While oak trees were observed up the slope on the neighboring property to the immediate west of the equestrian park site, no authorization to enter the adjoining property was available.
2. At the eastern edge of the project site, several trees located within a poison oak stand were not included in this inventory. These trees are located on steep slope to the east of a streambed proposed for preservation (in the vicinity of tree identified by the numbers 429-452 (as depicted and described in the Tree Survey and Impact Analysis, attached as Appendix B). Their position on a slope in isolation from the proposed grading limits on the slope on the west side of the streambed made their inclusion in the inventory unnecessary.

The Study Area comprises the development footprint and access road limits depicted on the project site plan. While in the field, pursuant to the City of Los Angeles Municipal Code, the location of each oak tree with a diameter at breast height (DBH) of eight inches or greater and all other trees with DBHs of 12 inches or greater identified within the Study Area were recorded ("other" trees were limited to western sycamore (*Platanus racemosa*) because no trees in the study area other than the sycamore and the coast live oak (*Quercus agrifolia*) were found to have DBHs of 12 inches or greater). The tree locations were recorded on a hand-held global position system (GPS) device and/or mapped directly on topographic maps.

2.3 Survey Limitations

Plant surveys were potentially limited by fairly dry conditions in the vicinity of the Study Area as precipitation in the region during the 2001-2002 rainfall season was only about 30% of normal. Any annual and bulbiferous perennial plant species may fail to germinate or grow during adverse conditions, including sub-optimal rainfall years.

3.0 REGULATORY REQUIREMENTS

Impacts to certain habitats and species associated with the Study Area are regulated by federal and State agencies, including the Corps, USFWS and CDFG. In addition, the City of Los Angeles is required to review and consider the biological impacts associated with the proposed project pursuant to the California Environmental Quality Act (CEQA).

3.1 Regulatory Agencies

3.1.1 U.S. Army Corps of Engineers

Pursuant to Section 404 of the Clean Water Act, the Corps regulates the discharge of dredged and/or fill material into waters of the United States. The term "waters of the United States" is defined at 33 CFR Part 328 and includes (1) all navigable waters (including all waters subject to the ebb and flow of the tide), (2) all interstate waters and wetlands, (3) all other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the use, degradation or destruction of which could affect interstate or foreign commerce, (4) all impoundments of waters mentioned above, (5) all tributaries to waters mentioned above, (6) the territorial seas, and (7) all wetlands adjacent to waters mentioned above. Wetlands are defined at 33 CFR 328.3(b) as "those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support...a prevalence of vegetation typically adapted for life in saturated soil conditions."

Issuance of a Section 404 Permit to discharge dredged or fill material into jurisdictional waters is considered a federal action and cannot be undertaken by the Corps if the permitted actions could adversely affect federally-listed (or proposed) endangered or threatened species. Where endangered species could be adversely impacted by a permitted action, the Corps must consult with USFWS prior to issuing a Section 404 permit.

3.1.2 U.S. Fish and Wildlife Service

Pursuant to Section 7 of the Federal Endangered Species Act (FESA), any federal agency undertaking a federal action (including issuance of Section 404 permits) which may affect a species listed or proposed as threatened or endangered under the FESA must consult with USFWS. In addition, any federal agency undertaking a federal action that may result in adverse modification of critical habitat for a federally listed species must consult with USFWS. The USFWS is currently considering additional designation of critical habitat in southern California.

Pursuant to Section 9 of the FESA, the "take" (e.g., harm, harass, pursue, injure, kill) of an animal species listed as threatened or endangered is prohibited. Destruction or adverse modification of habitat, either directly or indirectly, also constitutes a "take". A take can only be permitted pursuant to Section 7 or Section 10 of the FESA and is subject to USFWS approval. The USFWS may provide comments and recommendations outside their regulatory authority even if it is determined that a project will not adversely affect an endangered species.

3.1.3 California Department of Fish and Game (CDFG)

Pursuant to Division 3, Chapter 1.5, Sections 2050-2116 of the California Fish and Game Code, the CDFG prohibits take of state-listed species. If state-listed species are impacted by project implementation, the California Endangered Species Act (CESA) permit would be required. Likewise, the take of plants listed as rare under the California Native Plant Protection Act (CNPPA) are subject to CDFG approval. Impacts to state-listed species must be fully mitigated in order to satisfy CESA and CNPPA requirements.

Pursuant to Division 2, Chapter 6, Sections 1600-1603 of the California Fish and Game Code, the CDFG regulates all diversions, obstructions, or changes to the natural flow or bed, channel, or bank of any river, stream, or lake that supports fish or wildlife. CDFG defines a "stream" (including creeks and rivers) as "a body of water that flows at least periodically or intermittently through a bed or channel having banks and supports fish or other aquatic life. This includes watercourses having surface or subsurface flow that supports or has supported riparian vegetation."

4.0 EXISTING CONDITIONS

4.1 Study Area Location

The Canyon Hills project site covers approximately 887 acres and contains eight blue-line drainages (as depicted on the U.S. Geological Survey (USGS) topographic map Sunland, California [dated 1966 and photorevised in 1988] and Burbank, California [dated 1966 and photorevised in 1972]) [Exhibit 2]. In addition to the 887-acre project site, the adjacent 56-acre Duke Property was fully evaluated for biological resources. Combined, the approximately 943-acre site constitutes the "Study Area" for purposes of the biological survey efforts and for this report. However, it should be noted that the Wildlife Movement Study Area described in Section 2.2.8, above, includes the Study Area and additional land surrounding it.

4.2 Verdugo Mountains: Existing Biological Setting/Conditions

The Study Area is located at the eastern end of the Verdugo Mountains, a rugged series of ridgelines and canyons at the base of the San Gabriel Mountains that cover an estimated 11,554-acre area³⁵ that is fully within the cities of Los Angeles, Burbank, and Glendale³⁶. The Verdugo Mountains comprise an "island" as they are completely surrounded by urban development and are therefore not connected to other blocks of habitat/open space. Interstate 210 roughly bisects the Verdugo Mountains in a generally southeast-to-northwest alignment and La Tuna Canyon Road bisects the Verdugo Mountains from more-or-less east to west.

³⁵ PCR Services. 2000. *Los Angeles County Significant Ecological Area Update Study 2000: Background Report*. Prepared for the County of Los Angeles Department of Regional Planning.

³⁶ Swift, Cheryl, Allison Collins, Henry Gutierrez, Hilton Lam, and Irina Ratiner. 1993. *Habitat Linkages in an Urban Mountain Chain*. In: J.E. Kelley (ed.) *Interface Between Ecology and Land Development in California*. Southern California Academy of Sciences, Los Angeles.

Habitats associated with the rugged ridgelines and canyons consist largely of chaparral with limited amounts of coastal sage scrub on the drier south-facing slopes. A number of the steep canyons support oak woodlands. Other than La Tuna Canyon Creek, which traverses a portion of the Study Area, there are no major drainages that traverse the Study Area. The rugged landscape and dense vegetation generally restrict wildlife movement by larger mammals such as coyote and mule deer to existing wildlife trails along ridgelines, roads and firebreaks.

4.3 Vegetation Associations Onsite

As depicted in Exhibit 3, eleven vegetation associations (including ecotonal areas³⁷) were identified within the Study Area. Vegetation associations identified on the project site include: Mixed Chaparral (699.31 acres), Coastal Sage Scrub (75.41 acres), Deerweed (*Lotus scoparius*) Scrub (8.13 acres), Mulefat Scrub (0.66 acres), Chamise Chaparral (51.86 acres), Chamise Chaparral/Coastal Sage Scrub Ecotone (8.89 acres), Southern Mixed Riparian Forest (24.59 acres), Southern Coast Live Oak Woodland (2.60 acres), Southern Coast Live Oak Riparian Forest (11.74 acres), Southern Willow Scrub (2.09 acres), and disturbed-Ruderal Vegetation (1.63 acre). The Duke Property exhibits three vegetation types, including mixed chaparral (43.4 acres), Southern Coast Live Oak Woodland (11.0 acres), Southern Coast Live Oak Riparian Forest (1.6 acres). The acreage for each vegetation association is provided in Table 1.

4.3.1 Mixed Chaparral

Mixed Chaparral is one of the dominant vegetation associations in the Study Area, consisting of large sclerophyllous shrubs that reach up to eight feet in height. In many areas, the chaparral is mature, exhibits a closed canopy and is nearly impenetrable. Mixed chaparral generally exhibit low diversity with the canopy layer dominated by chamise (*Adenostoma fasciculatum*), hoaryleaf ceanothus (*Ceanothus crassifolius*), black sage (*Salvia mellifera*). Scrub oaks, *Quercus berberidifolia* or *Q. durata* var. *gabrielensis*, are locally dominant in some areas and laurel sumac (*Malosma laurina*) occurs as individuals throughout the Study Area. Understory is typically sparse with occasional herbs.

The southeast corner of the Study Area, immediately adjacent to La Tuna Canyon Road, burned in in the late 1990s. This portion of the Study Area is characterized by a dense, scrubby growth of deerweed, morning-glory (*Calystegia macrostegia*), California chicory (*Rafinesquia californica*). Resprouting chamise (*Adenostoma fasciculatum*) and laurel sumac (*Malosma laurina*) are common along with seedlings of hoaryleaf ceanothus (*Ceanothus crassifolius*), and coastal sage scrub components. Understory components include brome grasses, wild oats, fascicled tarweed (*Deinandra fasciculata*), black mustard, and California aster (*Lessingia filaginifolia*).

4.3.2 Venturan Coastal Sage Scrub

Most of the Study Area is dominated by chaparral; however, Venturan Coastal Sage Scrub is dominant on many of the south-facing slopes, particularly the slopes that overlook La Tuna

³⁷ Ecotonal areas are characterized by a blending of two or more distinct vegetation types.

Canyon Road. Venturan coastal sage scrub is comprised of California buckwheat (*Eriogonum fasciculatum*), California sagebrush (*Artemisia californica*), California brickelbush (*Brickellia californica*), laurel sumac (*Malosma laurina*), black sage (*Salvia mellifera*), deerweed (*Lotus scoparius*), and white sage (*Salvia apiana*). The understory is often comprised of wild oats (*Avena barbata*), red brome (*Bromus rubens*), tocalote (*Centaurea melitensis*), long-stemmed buckwheat (*Eriogonum elongatum*), black mustard (*Brassica nigra*), and many other native and non-native species of forbs.

Coastal sage scrub vegetation is the preferred habitat for the federally listed threatened coastal California gnatcatcher; however, focused protocol surveys conducted within all areas of coastal sage scrub within the proposed development area in 2002 did not detect any coastal California gnatcatchers in the Study Area. Many of the slopes that support coastal sage scrub are very steep, while gnatcatchers generally prefer areas that exhibit more gentle topography. As such, the lack of detection of gnatcatchers is in large measure due to unsuitable topography.

4.3.3 Deerweed Scrub

Artificial slopes adjacent to Interstate 210 are vegetated with near monocultures of deerweed (*Lotus scoparius*).

4.3.4 Mule Fat Scrub

Mule fat scrub occurs in small patches along or within drainages. This association supports Mule fat (*Baccharis salicifolia*) with occasional individuals of arroyo willow (*Salix lasiolepis*). Understory varies and includes mugwort (*Artemisia douglasiana*) along with non-native grasses and forbs.

4.3.5 Chamise Chaparral

Chamise Chaparral is dominant near the north-central portion of the project site. Unlike mixed chaparral that supports a number of species, the chamise chaparral consists of near monocultures of chamise (*Adenostoma fasciculatum*) with occasional individuals of black sage (*Salvia mellifera*). Understory elements are typically sparse and where they occur consist of deerweed and brome grasses.

**TABLE 5
VEGETATION ASSOCIATIONS IN STUDY AREA**

Canyon Hills Vegetation Associations	Total Acres
Mixed Chaparral	699.31
Venturan Coastal Sage Scrub	75.41
Deerweed Scrub	8.13
Mule Fat Scrub	0.66
Chamise Chaparral	51.86
Chamise Chaparral-Coastal Sage Scrub Ecotone	8.89
Southern Mixed Riparian Forest	24.59
Southern Coast Live Oak Woodland	2.60
Southern Coast Live Oak Riparian Forest	11.74
Southern Willow Scrub	2.09
Distrubed-Ruderal	1.63
Subtotal	886.93³⁸
Duke Property Vegetation Associations	
Mixed Chaparral	43.4
Southern Coast Live Oak Woodland	11.0
Southern Coast Live Oak Riparian Forest	1.6
Subtotal	56.0
Total	943.0

4.3.6 Chamise Chaparral/Coastal Sage Scrub Ecotone

Chamise Chaparral/Coastal Sage Scrub Ecotone represents a transition zone between chaparral and coastal sage scrub with chamise co-dominant with sage scrub species including California sagebrush (*Artemisia californica*), buckwheat (*Eriogonum fasciculatum*) or white sage (*Salvia apiana*).

4.3.7 Southern Mixed Riparian Forest

Southern Mixed Riparian Forest occurs within Drainage 4, which is located near the eastern edge of the project site, as well as within substantial portions of La Tuna Canyon Wash that traverses the southern boundary of the project site. The southern mixed riparian forest is dominated by coast live oak (*Quercus agrifolia*), arroyo willow (*Salix lasiolepis*), Mexican elderberry (*Sambucus mexicana*), western sycamore (*Platanus racemosa*), and white alder (*Alnus rhombifolia*)³⁹. Understory components include mulefat (*Baccharis salicifolia*), poison oak (*Toxicodendron*

³⁸ The 886.93 acres has been rounded throughout this report to 887 acres.

³⁹ The white alder occurs in La Tuna Canyon but not Drainage 4. All canopy species are associated with both Drainages.

diversilobum), Indian hemp (*Apocynum cannabinum*), basket rush (*Juncus textilis*), San Diego sedge (*Carex spissa*) and non-native umbrella sedge (*Cyperus involucratus*).

4.3.8 Southern Coast Live Oak Woodland

Southern Coast Live Oak Riparian Woodland is similar in composition with Southern Coast Live Oak Riparian Forest, but is not associated with drainage courses. Instead this habitat occurs on slopes well beyond the drainages that occupy the canyon bottoms. Coast live oak (*Quercus agrifolia*) is the dominant canopy species. Deep leaf litter is often present, and there is little understory vegetation. Skunkbrush (*Rhus trilobata*), poison oak (*Toxicodendron diversilobum*), and bracken fern (*Pteridium aquilinum*) are a few of the shade-tolerant species associated with this type of oak woodland in the Study Area.

4.3.9 Southern Coast Live Oak Riparian Forest

Southern Coast Live Oak Riparian Forest is also associated with Drainage 4 and La Tuna Canyon Wash, as well as a few of the ephemeral drainages throughout the project site, usually occurring as pockets of oaks. Coast live oak (*Quercus agrifolia*) is the dominant canopy species with understory consisting of poison oak, California coffee berry (*Rhamnus californica*), and various coastal sage scrub components such as California buckwheat (*Eriogonum californicum*), California sagebrush (*Artemisia californica*) and non-native grasses and forbs.

4.3.10 Southern Willow Scrub

Southern Willow Scrub is associated with the lower reaches of Drainage 4 and is dominated by arroyo willow (*Salix lasiolepis*) with scattered individuals of mulefat. Understory varies and includes mugwort (*Artemisia douglasiana*) along with non-native grasses and forbs.

4.3.11 Ruderal-Disturbed

Non-native grassland is dominated by wild oats (*Avena* spp.), ripgut brome (*Bromus diandrus*), black mustard (*Brassica nigra*), summer mustard (*Hirschfeldia incana*), common catchfly (*Silene gallica*), tocalote (*Centaurea melitensis*), and many other native and non-native herbaceous species.

4.4 Wildlife

4.4.1 Amphibians

Amphibians often require a source of standing or flowing water to complete their life cycle. However, some terrestrial species can survive in drier areas by remaining in moist environments found beneath leaf litter and fallen logs, or by burrowing into the soil. These xeric-adapted species conserve moisture by emerging only under conditions of high humidity or when the weather is cool and/or wet. A complete list of amphibian species known or expected to occur on the site is provided in the faunal compendium [Appendix D].

Southern Mixed Riparian Forest and Southern Coast Live Oak Woodlands, as well as seasonally flowing water, occur within Drainage 4 and La Tuna Canyon Wash. These areas provide potential habitat for amphibian species adapted to drier conditions, but only minimal potential habitat for species that require permanent water. The only amphibians observed in the Study Area were the Pacific treefrog (*Pseudacris regilla*) and California treefrog (*Hyla cadaverina*). Additional amphibian species that could potentially occur on the site include the Pacific slender salamander (*Batrachoseps pacificus*), arboreal salamander (*Aneides lugubris*), black-bellied salamander (*Batrachoseps nigriventris*), and western toad (*Bufo boreas*). Amphibian species known or expected to occur in the Study Area are listed in the faunal compendium included in Appendix D.

4.4.2 Reptiles

The diversity of reptile species is related to the diversity of plant communities found in the Study Area. Reptiles identified or expected to occur in the Study Area are discussed below by habitat. A complete list of reptile species known or expected to occur on the site is given in the faunal compendium [Appendix D].

4.4.2.1 Scrub and Chaparral Communities

Coastal sage scrub, southern cactus scrub, and chaparral communities identified in the Study Area are utilized nearly year-round by a large number of reptile species. Species identified within the scrub and chaparral communities during focused and general surveys include the western fence lizard (*Sceloporus occidentalis*), side-blotched lizard (*Uta stansburiana*), western skink (*Eumeces skiltonianus*), California whipsnake (*Masticophis lateralis*), gopher snake (*Pituophis melanoleucus*), and western rattlesnake (*Crotalus viridis*). Other reptile species which are expected to occur in scrub and chaparral communities include the Gilbert skink (*Eumeces gilberti*), San Diego banded gecko (*Coleonyx variegatus abbotti*), rosy boa (*Lichanura trivirgata*), western whiptail (*Cnemidophorus tigris*), southern alligator lizard (*Gerrhonotus multicarinatus*), ringneck snake (*Diadophis punctatus*), racer (*Coluber constrictor*), western patch-nosed snake (*Salvadora hexalepis*), and common kingsnake (*Lampropeltis getulus*).

4.4.2.2 Riparian and Woodland Communities

Riparian communities tend to exhibit low reptile species diversity. However, reptiles commonly identified near the edge of the intermittent drainages such as La Tuna Canyon Wash and Drainage 4, include the California whipsnake, side-blotched lizard, and western fence lizard. Other species that are expected to occur within or near riparian areas include the Gilbert skink, southern alligator lizard, two-striped garter snake (*Thamnophis hammondi*), and common garter snake (*Thamnophis sirtalis*).

Reptile species observed utilizing a variety of plant communities include the western fence lizard, alligator lizard, and side-blotched lizard.

4.4.3 Birds

Birds were the most common vertebrates observed in the Study Area. The birds identified or expected to occur in the Study Area are discussed below in relation to the onsite vegetative communities in which they were commonly observed or expected to occur. A complete list of all birds known or expected to occur onsite is provided in the faunal compendium included in Appendix D.

4.4.3.1 Scrub Communities

The scrub communities present in the Study Area, including mixed chaparral and Venturan coastal sage scrub, are generally composed of dense vegetation which provides breeding habitat for resident species such as the California towhee (*Pipilo crissalis*), spotted towhee (*Pipilo erythrophthalmus*), wren-tit (*Chamaea fasciata*), Bewick's wren (*Thryomanes bewickii*), bushtit (*Psaltriparus minimus*), black phoebe (*Sayornis nigricans*), California quail (*Callipepla californica*), Anna's hummingbird (*Calypte anna*), western scrub-jay (*Aphelocoma coerulescens*), Northern mockingbird (*Mimus polyglottos*), and California thrasher (*Toxostoma redivivum*). Migratory species that utilize scrub habitats during the winter months include the white-crowned sparrow (*Zonotrichia leucophrys*), song sparrow (*Melospiza melodia*), Costa's hummingbird (*Calypte costae*), orange-crowned warbler (*Vermivora celata*), black-throated gray warbler (*Dendroica nigrescens*), Allen's hummingbird (*Selasphorus sasin*), black-chinned hummingbird (*Archilochus alexandri*), fox sparrow (*Passerella iliaca*), ash-throated flycatcher (*Myiarchus cinerascens*), and golden-crowned sparrow (*Zonotrichia atricapilla*).

4.4.3.2 Woodland and Riparian Communities

The native woodland communities in the Study Area, including southern mixed riparian forest and southern coast live oak woodlands, provide habitat for many bird species. Resident species noted in the Study Area include the northern flicker, black phoebe, Anna's hummingbird, western scrub-jay, mourning dove, bushtit, acorn woodpecker (*Melanerpes formicivorus*), barn owl (*Tyto alba*), great horned owl (*Bubo virginianus*), plain titmouse (*Parus inornatus*), house wren (*Troglodytes aedon*), Hutton's vireo (*Vireo huttoni*), lesser goldfinch (*Carduelis psaltria*), American crow (*Corvus brachyrhynchos*), and common raven (*Corvus corax*). Migratory species identified from woodland communities include the black-chinned hummingbird, Costa's hummingbird, song sparrow, ash-throated flycatcher, western bluebird (*Sialia mexicana*), American robin (*Turdus migratorius*), yellow-rumped warbler (*Dendroica coronata*), western tanager (*Piranga ludoviciana*), rufous-crowned sparrow (*Aimophila ruficeps*), white-crowned sparrow, Bullock's oriole (*Icterus galbula*), and purple finch (*Carpodacus purpureus*). The raptors most commonly observed in oak woodland communities were the Cooper's hawk (*Accipiter cooperii*) and red-tailed hawk.

4.4.4 Mammals

Identification of mammals in the Study Area was generally determined by physical evidence rather than direct visual identification. This is because many of the mammal species that could potentially occur in the Study Area are nocturnal and would not have been active during the site

visits. The diverse habitats onsite provide a multitude of services for mammal species, including use for foraging, nesting/burrowing, and wildlife movement. A complete list of mammals that are known or expected to occur in the Study Area is provided in the faunal compendium included in Appendix D.

4.4.4.1 Scrub Communities

The Venturan coastal sage scrub in the Study Area represents potential habitat for a number of mammals. Species identified in the Study Area, either by direct observation or physical evidence, include the Audubon's cottontail (*Sylvilagus audubonii*), California ground squirrel (*Spermophilus beecheyi*), Botta's pocket gopher (*Thomomys bottae*), deer mouse (*Peromyscus maniculatus*), desert woodrat (*Neotoma lepida intermedia*), coyote (*Canis latrans*), striped skunk (*Mephitis mephitis*), bobcat (*Lynx rufus*), mountain lion (*Felis concolor*), and mule deer (*Odocoileus hemmionus*).

The mixed chaparral community in the Study Area provides habitat for the Audubon's cottontail, brush rabbit, California ground squirrel, Pacific kangaroo rat (*Dipodomys agilis*), deer mouse, desert woodrat, coyote, gray fox (*Urocyon cinereoargenteus*), striped skunk, and bobcat. Mule deer occur only on the portion of the project site south of Interstate 210 and only in low numbers.

4.4.4.2 Riparian and Woodland Communities

The riparian communities in the Study Area associated with semi-permanent water sources, especially areas of La Tuna Canyon and Drainage 4, can be heavily utilized. Therefore, the majority of the mammals present on the site would be expected to utilize these areas to some extent. Species that are known or have the potential to occur within the riparian communities in the Study Area include the deer mouse, California vole, coyote, ringtail (*Bassariscus astutus*), raccoon (*Procyon lotor*), western spotted skunk (*Spilogale gracilis*), striped skunk, mountain lion, bobcat, and mule deer.

The woodland communities present in the Study Area, including southern coast live oak woodland and walnut woodland, provide habitat for numerous mammal species. Mammals known to exist within the woodland communities present in the Study Area include the deer mouse, desert woodrat, coyote, gray fox, raccoon, striped skunk, mountain lion, bobcat, and mule deer.

Non-native woodland communities, such as eucalyptus and orchard/ornamental landscapes support opportunist mammals such as opossum, black rat (*Rattus rattus*) striped skunk, California ground squirrel, and coyote, as well as mule deer.

4.5 Wildlife Movement Corridors

4.5.1 Wildlife Movement: Importance, Context and Focus

Wildlife movement, at the regional scale, has come under increasing scrutiny in areas of intensifying land use, where development has fragmented the landscape and left blocks of natural/native habitat separated by blocks of residential, commercial, industrial and institutional

development, including roadways and other infrastructure. Where connectivity between blocks of habitat still exists in these fragmented areas, it is usually via wildlife movement corridors, typically consisting of narrow strips of habitat that provide opportunities for species to move between larger habitat blocks.

According to Noss⁴⁰ and Soule and Gilpin⁴¹, regional movement through wildlife corridors is important for three reasons: (1) it allows the movement of animals between remaining large habitat blocks, thus replenishing populations and maintaining genetic diversity; (2) it provides escape routes from fire, predators and human disturbances; and (3) it provides a travel route for animals to disperse, forage and breed. If corridors are blocked or cut, the potential for inter-population genetic exchange within or between regions is severely limited. Lack of genetic exchange reduces the long-term viability of populations left in unconnected “islands” of remaining habitat, and is of special concern for larger mammals such as mountain lions, mule deer and bobcats, which require larger home ranges.

The identification and maintenance of local wildlife corridors, although less important than regional wildlife corridors, should also be considered when evaluating potential impacts associated with development projects. Local corridors serve many of the same functions as regional corridors, only at the local scale, such as genetic exchange, replenishment of populations, travel routes to food and water, and escape from fire and predators.

For purposes of the Canyon Hills project wildlife movement study, “regional wildlife movement” is defined as movement between large blocks of non-contiguous habitat such as between the San Gabriel Mountains and the Verdugo Mountains or between the Verdugo Mountains and the Santa Monica Mountains. “Local wildlife movement” is defined as movement within the Verdugo Mountains and includes movement within the Study Area as well as between the project site and other portions of the Verdugo Mountains.

Consistent with these concerns, this report focuses on potential regional movement of large predatory mammals, including the mountain lion, bobcat, coyote, American badger and gray fox, along with mule deer, which provide a potential prey base for the mountain lion. In addition, local movement within or through the Study Area by these large mammals is evaluated.

Most resident and all migratory avifauna that currently use the Study Area can easily disperse to other portions of the Verdugo Mountains, as well as across surrounding developed areas to other areas of open space such as the San Gabriel Mountains or the Santa Monica Mountains. Resident avifauna with lesser dispersal abilities can disperse easily across Interstate 210 and La Tuna Canyon Road to the main body of the Verdugo Mountains. For these reasons, resident and migratory avifauna are not addressed in this study.

⁴⁰ Noss, R.F. 1991. Landscape Connectivity: different functions at different scales. In W.E. Hudson (Ed.) *Landscape Linkages and Biodiversity*. Island Press, Washington, D.C.

⁴¹ Soule, M.E. and M.E. Gilpin. 1991. The Theory of Wildlife Corridor Capability. In D.A. Saunders and R.J. Hobbs, (Eds.) *Nature Conservation 2: The Role of Corridors*. Surrey Beatty & Sons Pty Limited, Chipping Norton, Australia.

Dispersal to and from the Site by small mammals and reptiles has already been cut off by construction of the Interstate 210 and surrounding development, and the proposed project will not change the existing conditions relative to dispersal/movement of such species. Therefore, the impact of the proposed project on small mammals and reptiles will not be addressed further in this report.

4.5.2 Summary of Canyon Hills Wildlife Movement Study

The Wildlife Movement Study (Appendix D) prepared for the project identified one potential regional corridor that would connect the San Gabriel Mountains with the main body of the Verdugo Mountains along with four local corridors that traverse portions of the Study Area. The potential regional corridor includes areas on the project site (discussed below under Drainage 14 and La Tuna Canyon Wash) and offsite areas between Tujunga Wash (located to the northwest of the project site) and the northwest corner of the project site. The four “local” movement corridors include La Tuna Canyon Wash, Drainage 14, Drainage 4, and Verdugo Crestline Drive/Fire Road. These features are depicted on Exhibits 5 and 7. In addition to identifying and evaluating the corridors discussed below, movement by “target” large mammals including mountain lion, mule deer, bobcat, coyote, gray fox, and American badger was evaluated for the project site and larger wildlife movement Study Area. A summary of potential or actual movement by each of these species is also provided below.

Missing Links # 27

The wildlife movement Study Area includes a potential linkage between the San Gabriel Mountains and the Verdugo Mountains via the Tujunga Wash, identified by the "Missing Linkages" Conference as "Linkage #27: Angeles-Verdugo Mountains" [depicted on Exhibit 6]. This linkage (detailed in Appendix C) is described in the document as a "Missing Link" and is characterized by Reed Noss as follows:

This linkage would connect the Verdugo Mountains to the San Gabriel Mountains in Angeles National Forest. Missing Links describes this as a Missing Link, which is accurate because the existing connection is tenuous at best. There is some undeveloped private land and islands of public land. Highway 210 crosses the Big Tujunga Wash here, but an underpass is needed for wildlife movement, accompanied by a secure corridor to the Verdugo Hills

In order to move through this corridor from the San Gabriel Mountains to the main body of the Verdugo Mountains south of La Tuna Canyon Road), an animal in would move from Tujunga Wash along Foothill Boulevard to Wentworth Street, where the animal would then move up a hillside and through a residential neighborhood or along a steep slope overlooking the Sunland Boulevard on- and off-ramps to Interstate 210, in either case reaching Sunland Boulevard (a major arterial). The animal would then have to safely cross Sunland Boulevard, immediately west of the Interstate 210, where it could move through additional residential areas, on to the project site either using the Green Verdugo Fire Road or along the benches cut into the slope of the Interstate 210 as depicted on Exhibit 6.

Drainage 14

Upon reaching the northwest corner of the project site, there is a clear movement path along Drainage 14, which generally traverses the western edge of the project site. The lower one-half of this corridor consists of coast live oak riparian forest. This corridor is depicted on Exhibit 5 and provides a clear and unconstrained path to La Tuna Canyon Wash and La Tuna Canyon Road.

While only local movement by mule deer and coyote was documented for this corridor, it represents a segment in a potential corridor that connects the Verdugo Mountains with the San Gabriel Mountains to the north.

La Tuna Canyon Wash

From the confluence of Drainage 14 and LA Tuna Canyon Wash near the southwest corner of the project site, animals can move either to the east or west in La Tuna Canyon Wash or along La Tuna Canyon Road. From the wash, animals can move safely under the roadway through a number of culverts, reaching the main body of the Verdugo Mountains. Animals moving along the road can cross at any point to reach the main body of the Verdugo Mountains.

While only local movement by coyotes and raccoons was documented for this corridor, it represents a segment in a potential corridor that connects the Verdugo Mountains with the San Gabriel Mountains to the north.

Drainage 4

Drainage 4 is located within a deeply incised canyon that is located along the eastern edge of the project site. Residential development is located to the north and east of this corridor, extending for most of its length. This drainage terminates at an eight-foot culvert that carries flows beneath Interstate 210, extending for approximately 1,500 feet to just above La Tuna Canyon Wash. A track station was located at this culvert and no wildlife movement was detected into or out of this culvert, which is not expected to provide for wildlife movement beneath Interstate 210 because of its extreme length. Only local movement is possible along this drainage, as it is not connected to any potential regional movement corridors at either the upstream end or at the lower end at Interstate 210. Coyotes and raccoons were the only animals detected using this feature.

Verdugo Crestline Drive

Verdugo Crestline Drive supports local movement by gray fox and coyote and at least limited movement by mule deer along the northern edge of the project site. Based on the amount of scat, both coyote and gray fox exhibited moderate to heavy use of this movement path, although it is difficult to determine the actual number of animals using this road for movement. Verdugo

Crestline Drive pathway leads directly into existing residential development to the northwest and the east. While it is possible for animals to move east and then into Drainage 4, as discussed above, movement beyond this is severely restricted by Interstate 210.

Mountain Lion

Historically, the Verdugo Mountains were likely used by mountain lions. However, isolation by development of the Los Angeles Basin and the construction of Interstate 210 has severed the Verdugo Mountains from blocks of habitat of sufficient size to support mountain lions. As discussed above, the only possible way a mountain lion could reach the Verdugo Mountains is through the Tujunga Wash (north or south fork). However, as noted by Reed Noss, the connectivity between the Tujunga Wash and the Verdugo Mountains is "tenuous at best" and is more accurately described as a "Missing Link". Furthermore, in order for a mountain lion to travel from Tujunga Wash to the project site, it would have to travel over one-half mile and overcome a series of man-made obstacles. As discussed above, individual coyotes and gray foxes may be using part or all, of this tenuous corridor, and it appears that they are familiar with the specific locations where they can pass through yards and or through/under fences. In the unlikely event that a lion reached the Tujunga Wash, it would not likely find these specific locations and would be too large to "squeeze" through these passageways.

In the more unlikely event that a mountain lion surmounts these obstacles and manages to reach the northwestern portion of the project site, then, as discussed above, the mountain lion could travel in a southerly direction along Drainage 14, through the project site's open space, to La Tuna Canyon Wash and either across La Tuna Canyon Road or through one of the many culverts beneath La Tuna Canyon Road into the open space owned by the Santa Monica Mountains Conservancy on the south side of La Tuna Canyon Boulevard.

Finally, even if a mountain lion managed to reach the main body of the Verdugo Mountains as described above, the area would not represent suitable habitat due to the limited area relative to home range requirements and the low density of mule deer, the main food source for the mountain lion. That this is not a likely event is confirmed by Paul Beier who suggested that, at best, "[w]ith excellent connectivity, it could be a useful part of a home range for an individual animal or two." However, as noted above, the Tujunga Wash linkage is tenuous at best.

Mule Deer

Over the course of all GLA biological studies, evidence of mule deer presence was recorded in only two areas of the project site, and both of those areas were outside of proposed Development Areas. The first occurrence was a set of mother and fawn tracks observed north of Interstate 210 along the firebreak road that extends along the northern edge of the project site. The second observation was recorded south of Interstate 210 in Drainage 14, which offers unrestricted access from La Tuna Canyon Wash northwest to the northwest corner of the project site and continues offsite on a fire break road [Exhibit 5 depicts these locations]. Mule deer were observed numerous times in the La Tuna Canyon Park area immediately above the visitor parking areas walking on established trails within chaparral. No evidence of mule deer sign was observed

within Development Areas A and B on either side of Interstate 210. Although no evidence of mule deer sign was observed in Development Area B on the south side of Interstate 210, it is expected that mule deer visit this area from time to time by crossing La Tuna Canyon Road.

Bobcat

Bobcats were not detected at any time within the project site (including Development Areas A and B), on the Duke Property, or elsewhere in the Wildlife Movement Study Area, including track stations. However, presence of appropriate habitat for and local observations of bobcats⁴² indicate that bobcats may occur in the project site and access Drainage 14 from areas south of project site. It is fully expected that bobcats cross Verdugo Crestline Drive to and adjacent undeveloped areas. Like coyotes, bobcats are able to coexist with human development and are able to subsidize their diet with increased rodent populations that often occur and thrive along the urban/wildland interface.

Coyote

GLA studies indicate that coyotes are still common in the Verdugo Mountains where areas of open space occur adjacent to residential development. Coyotes commonly use residential streets at night or during early morning hours as they move in and out of residential neighborhoods in search of prey or other dietary components/subsidies. Coyotes were the most commonly detected mammal within the Study Area, occurring almost entirely on existing trails, ridgelines and fire roads. GLA studies conducted in the Study Area identified a number of paths used by coyotes [Exhibit 5]. Coyotes likely use portions of the Study Area as local corridors when moving in and out of adjacent neighborhoods and it was presumed that coyotes occasionally move through the Study Area as they disperse to other areas, often using roads or residential areas.

4.6 Sensitive Biological Resources

A search of the California Natural Diversity Data Base (CNDDDB) for the Sunland, Pasadena, Burbank, and Glendale Quadrangles provided records for several sensitive species and habitats with the potential to occur in the area. These species and habitats are discussed below. In addition, a number of other references were consulted. These references are summarized below:

- **Wildlife:** CNDDDB (1999); USFWS (1992, 1999); CDFG (1988, 1990a, 1990b, and 1999); USFS (1999)
- **Plants:** CNDDDB (2002a & b), Tibor (2001), CDFG(1999); (USFS 1999)
- **Lichens:** Brodo et al. (2001), California Lichen Society Red List (http://128.32.109.44/red_page.html/), Hale and Cole (1988), Magney (1999), Nash et al. (2002)
- **Habitats:** CNDDDB (2002a); CDFG (1999); USFS 1999

⁴² In all of the reported observations, the bobcats were reportedly observed in close proximity to existing residences and in a few cases observed within the yards.

4.6.1 Significant Ecological Areas or Environmentally Sensitive Habitat Areas

The County of Los Angeles Regional Planning Department was contacted to determine if any designated Significant Ecological Areas (SEAs) or Environmentally Sensitive Habitat Areas (ESHAs) are known in the vicinity. The project site is located within SEA No. 40. However, County SEA policies only apply to unincorporated areas within the County, while the project site is located entirely within the City. Therefore, the proposed project is not subject to any restrictions associated with SEA No. 40.

4.6.2 Corps and CDFG Jurisdiction

Corps jurisdiction at the project site totals approximately 6.46 acres, of which 400 square feet (0.009 acre) consist of jurisdictional wetlands. A total of 23 drainages were identified on the project site. All of the drainages, with the exception of Drainage 2 (LA Tuna Canyon Wash), and the lower portions of Drainage 4 (a tributary to La Tuna Canyon Wash) are ephemeral drainages that vary in width from one to 16 feet. Drainages 2 and 4 are intermittent drainages that support areas with riparian herbs, shrubs, and trees. On January 28, 2003, a representative of the Corps visited the project site to verify the jurisdictional delineation. Following completion of the verification visit, the Corps provided concurrence that the jurisdictional delineation was correct and approved. The acreage totals provided in this report, as well as the Jurisdictional Delineation Report attached as Appendix C, reflect the Corps-approved jurisdictional delineation.⁴³

CDFG jurisdiction at the project site totals approximately 9.12 acres, of which approximately 6.49 acres consist of vegetated riparian habitat. On March 3, 2003, representatives of CDFG visited the project site to verify the jurisdictional delineation. Following completion of the verification visit, the CDFG provided concurrence that the jurisdictional delineation was correct and approved. The acreage totals provided in this report, as well as the Jurisdictional Delineation Report attached as Appendix C, reflect the CDFG-approved jurisdictional delineation.

Detailed descriptions of drainage features subject to Corps and CDFG jurisdiction are provided in the referenced Jurisdictional Delineation Report attached as Appendix C.

4.6.3 Special-Status Vegetation Associations

A review of the CNDDDB and other sources noted above indicated that the following vegetation associations are known from the vicinity of the Study Area: California Walnut Woodland, Southern Coast Live Oak Riparian Forest, Southern Cottonwood-Willow Riparian Forest, Southern Sycamore-Alder Riparian Woodland, Riversidean Alluvial Fan Sage Scrub, Southern Mixed Riparian Forest, Southern Willow Scrub, and Venturan Coastal Sage Scrub.

⁴³ Glenn Lukos Associates. 2003. Letter Report addressed to Mr. Chris Joseph. Subject: Jurisdictional Delineation of Canyon Hills in the City of Los Angeles, Los Angeles County, California.

Site surveys including vegetation mapping identified the following special-status associations in the Study Area: Southern Coast Live Oak Riparian Forest, Southern Mixed Riparian Forest, Southern Willow Scrub, and Venturan Coastal Sage Scrub.

4.6.3.1 Coastal Sage Scrub

Coastal sage scrub is considered a sensitive vegetation type throughout much of southern California, primarily in regions known to support the federally listed threatened coastal California gnatcatcher. Coastal sage scrub has an S3.1 ranking (defined as occupying between 10,000 and 50,000 extant acres and exhibiting a high level of threat) the CDFG. Recent observations of the coastal California gnatcatcher in parts of Los Angeles County, including the western portion of the Verdugo Hills, have been recorded. However, the coastal sage scrub on the Canyon Hills project site does not represent high value for the California gnatcatcher due to the overall steep topography associated with the site and the species composition, which includes substantial amounts of deerweed and buckwheat and only limited amounts of California sagebrush (which is preferred by the gnatcatcher over the deerweed and buckwheat). The coastal California gnatcatcher was not observed in the Study Area during protocol surveys in the spring of 2002, as discussed more fully below.

4.6.3.2 Southern Coast Live Oak Riparian Forest

Southern coast live oak riparian forest is included in the CNDDDB, but ranked as S4 (“apparently secure within California”). CDFG describes this vegetation type as:

“Open to locally dense evergreen sclerophyllus riparian woodlands dominated by Quercus agrifolia. This type of appears to be richer in herbs and poorer in understory shrubs than other riparian communities...Site factors: Bottomlands and outer floodplains along larger streams, on fine-grained, rich alluvium.”

The coast live oak woodland is not in all cases associated with a stream or water from a stream. The dense woodland vegetation extends up the slopes above the rocky canyon bottoms, extending over the tops of the ridges in many cases. Oak Woodlands with the same understory species present were commonly identified on several slopes and within canyons throughout the Study Area. Shrubby species, especially poison oak (*Toxicodendron diversilobum*) and toyon (*Heteromeles arbutifolia*), are common. Only oaks clearly associated with streams or growing on terraces associated with the streams were mapped as “oak riparian”.

4.6.3.3 Southern Mixed Riparian Forest

Southern Mixed Riparian Forest is included in the CNDDDB with a rank of S2.1 (between 2,000 and 10,000 extant acres and a high level of threat) by the CDFG.

4.6.3.4 Southern Willow Scrub

Southern Willow Scrub is included in the CNDDDB with a rank of S2.1 (between 2,000 and 10,000 extant acres and a high level of threat) by the CDFG.

4.6.4 Special-Status Vascular Plants

Focused surveys were conducted for 40 special-status plant species with the potential to occur in the Study Area. Three special-status plant species were identified on the project site: ocellated Humboldt lily (CNPS List 4), Plummer's mariposa lily (CNPS List 1B), and southern California black walnut (CNPS List 4). Exhibit 4 depicts the location of these species on the project site.

Special-Status Vascular Plants Observed In the Study Area

4.6.4.1 Plummer's Mariposa Lily (*Calochortus plummerae*)

Plummer's mariposa lily is listed by CNPS as a List 1B plant (plants rare, threatened, or endangered in California and elsewhere), but is not federally- or state- listed. This species is known from several vegetation communities and is found in Los Angeles, Ventura, Riverside, and San Bernardino Counties. A few dried individuals were observed within chaparral from the 2001 rainfall season. A total of 17 dead plants with old capsules that fit the description of the species were counted [see Exhibit 4]. Due to the low rainfall, no mariposa lilies emerged during the 2002 rainfall season.

4.7.4.2 Southern California Black Walnut (*Juglans californica* var. *californica*)

Southern California black walnut is a shrub or tree designated as a CNPS List 4 species (watch list). This species occurs throughout cismontane Southern California from Los Angeles County to San Diego County, but is declining in much of its range. One small individual southern California black walnut, approximately 5 inches in diameter, was identified on the project site in Drainage 4 [see Exhibit 3].

4.6.4.3 Ocellated Humboldt Lily (*Lilium humboldtii* ssp. *ocellatum*)

Ocellated Humboldt lily is a robust perennial herb in the lily family, designated as a CNPS List 4 plant (watch list). This species is known from several southern California counties, normally found in canyons below 3,000 feet. Ocellated Humboldt lily was observed on the project site during general and focused plant surveys within Drainage 4, Drainage 5, and La Tuna Canyon Creek [see Exhibit 4].

Special-Status Vascular Plants Not Observed in the Study Area

4.6.4.4 Greata's Aster (*Aster greatae*)

Greata's aster is a herbaceous perennial in the aster family restricted to chaparral and oak woodland of the San Gabriel Mountains and is designated by the California Native Plant Society (CNPS) as a

List 4 plant (watch list). This species occurs in moist or dry areas in canyons in chaparral or oak woodland, usually above 2,000 feet elevation. Greata's aster was not observed the Study Area, and the site may be below the elevational range of this species, although some marginally potential habitat is present.

4.6.4.5 Coulter's Saltbush (*Atriplex coulteri*)

Coulter's saltbush is a perennial listed as a CNPS 1B species (plants rare, threatened, or endangered in California and elsewhere) that is typically associated with alkaline or saline clay soils. Although is most often found on coastal bluffs, it is also known from valley and grassland habitats in southern California's coastal mountains. This species was not observed during focused surveys and this species is not expected in the Study Area due to a lack of suitable habitat.

4.6.4.6 Parish's Saltscale (*Atriplex parishii*)

Parish's saltscale is a perennial subshrub, listed as a CNPS 1B species (plants rare, threatened, or endangered in California and elsewhere) that is typically associated with alkaline or saline clay soils. Suitable habitat is not present anywhere in the Study Area. This species was not observed during focused surveys and this species is not expected to occur within the Study Area due to a lack of suitable habitat.

4.6.4.7 Braunton's Milkvetch (*Astragalus brauntonii*)

Braunton's milkvetch is a short-lived, stout perennial in the pea family that is federally listed as endangered. This plant occurs below 1,500 feet elevation in coastal sage scrub and chaparral in Los Angeles, Orange, and Ventura Counties. This species is closely associated with disturbed areas such as recent burns, firebreaks, and roads, coming up soon after the disturbance and declining as other vegetation recovers in later years. In addition, Braunton's milkvetch is typically associated with calcareous soils, which do not occur in the Study Area. This species is threatened by development and alteration of historic fire regimes. Braunton's milkvetch was not observed in the Study Area, and is not expected to occur due to the lack of calcareous soils or local observations, despite the heavy recent disturbance due to fire.

4.6.4.8 Malibu Baccharis (*Baccharis malibuensis*)

Malibu baccharis is listed by CNPS as a List 1B plant (plants rare, threatened, or endangered in California and elsewhere), but is not federally or State-listed. Its distribution is limited to the Malibu Lake area of Santa Monica Mountains in Los Angeles County, and a recently discovered disjunct population in the Santa Ana Mountains in Orange County. It was added to the target species list as a result of the discovery of the species in the Santa Ana Mountains. Its habitat is generally open chaparral, cismontane woodlands, and coastal scrub at elevations of 500-850 feet. This species was not detected during surveys within the Study Area and is not expected to occur based upon lack of detection and its current known distribution, which is well removed from the Verdugo Mountains.

4.6.4.9 Nevin's Barberry (*Berberis nevinii*)

Nevin's barberry is a shrubby member of the barberry family that is state- and federally listed as endangered. This conspicuous easy-to-identify shrub occurs below 2,000 feet elevation in sandy areas in coastal sage scrub, alluvial scrub, and chaparral in Los Angeles, San Bernardino, and Riverside Counties. This species is threatened by development and road maintenance. This distinctive shrub was not observed in the Study Area, and is not likely to present based on the lack of detection and limited amounts of potentially suitable habitat within the Study Area.

4.6.4.10 Round-Leaved Boykinia (*Boykinia rotundifolia*)

Round-leaved boykinia is a glandular perennial in the saxifrage family that has been considered for listing as a CNPS List 4 plant (watch list). This plant occurs in wet places below 6,000 feet in canyons, chaparral, and woodlands throughout southern California, but is uncommon. Suitable habitat for this species appears to be present on the project site within Drainage 4 and La Tuna Canyon Wash. However, this distinctive sub-shrub was not observed during focused surveys within areas of suitable habitat in the Study Area, and is not expected to occur based on the lack of detection. The species was detected offsite in 2002 on the Santa Monica Mountains Conservancy parkland property south of La Tuna Canyon Road, where it is closely associated with slow-drip perennial springs on rocky cliffs.

4.6.4.11 Brewer's Calandrinia (*Calandrinia breweri*)

Brewer's calandrinia is designated as a CNPS List 4 plant (watch list). Its range extends from Sonoma County south to the foothills of Baja California, and also occurs on Santa Cruz and Santa Rosa Islands. It is often associated with disturbed micro-sites, mostly less than 3,500 feet elevation, on sandy or loamy soil. It is especially frequent in burn areas. This glabrous, fleshy annual has red flowers with green-veined sepals, and blooms from March to June. Suitable habitat for this species appears to be present in the Study Area in burned chaparral north of Interstate 210. However, it was not detected in the Study Area during the surveys and is not expected to occur based on the lack of detection.

4.6.4.12 Catalina Mariposa Lily (*Calochortus catalinae*)

Catalina mariposa lily is a bulb-forming perennial in the lily family designated by CNPS as a List 4 plant (watch list). This species is endemic to California but is widespread, occurring in nine coastal California counties. Habitats include open areas within grasslands and grassland-sage scrub ecotone areas below 2,000 feet. Limited areas of habitat within the Study Area appear marginal for this species due to the lack of extensive areas of grassland. This species was not observed during the 2002 survey efforts and is not expected to occur due to a lack of suitable grassy habitats or open CSS.

4.6.4.13 Slender Mariposa Lily (*Calochortus clavatus* var. *gracilis*)

Slender mariposa lily is a bulb-forming perennial member of the lily family, designated as a List 1B (plants rare, threatened, or endangered) by CNPS. This species is endemic to chaparral slopes below 4,000 feet along the south base of the San Gabriel Mountains. An inflorescence from a mariposa lily with a long, slender capsule was identified within the Study Area that was consistent with this species or potentially Plummer's mariposa lily (see above).

4.6.4.14 Peirson's Morning-Glory (*Calystegia peirsonii*)

Peirson's morning-glory is known only from Los Angeles County and is a CNPS List 4 species (watch list). It is associated with open chaparral and scrub habitats, and cismontane and coniferous woodlands between 100 and 5,000 feet. This easily identified perennial herb was not located during surveys, and is not expected to occur within the Study Area based on the lack of detection.

4.6.4.15 Parry's Spineflower (*Chorizanthe parryi* var. *parryi*)

Parry's spineflower (*Chorizanthe parryi* var. *parryi*) is a CNPS List 3 species (a category for species about which CNPS needs more information before being assigned to the appropriate list). This species occurs in sandy openings in Riverside and San Bernardino counties, and has been collected near Mt. Wilson in the San Gabriel Mountains, but not in recent years. Because focused surveys were conducted for the similar San Fernando Valley spineflower (*Chorizanthe parryi* var. *fernandina*), Parry's spineflower would have been identified during surveys if it were present in the Study Area.

4.6.4.16 San Fernando Valley Spineflower (*Chorizanthe parryi* var. *fernandina*)

The San Fernando Valley Spineflower is a diminutive annual in the buckwheat family that was formerly assumed to be extinct. This plant was rediscovered in Calabasas during the spring of 1999 by GLA botanists. It has also been recently been found near Newhall in Los Angeles County. This species was formerly known from sandy habitats in several southern California localities, which have now been extirpated by urban development. In the recently discovered populations, the San Fernando Valley spineflower occurs in sandy or well-drained sandy-loam soils in coastal sage scrub or non-native grassland. This species was not observed in the Study Area, including a focused search during the spring surveys for dead stubble of plants that may have germinated in 2001. It is therefore not expected due to the lack of suitable sandy habitat and lack of detection.

4.6.4.17 Small-Flowered Morning Glory (*Convolvulus simulans*)

The small-flowered morning-glory is a CNPS List 4 species (watch list). This species ranges from Baja California north to San Luis Obispo County, and inland from Riverside to Kern counties. Its preferred microhabitat is vernal moist clays, serpentine seeps and ridges, and rock outcrops and other shallow soil habitats with scattered native shrubs or in grasslands. This small annual flowers from March through June. This morning-glory is not a vine, and its pink flowers are usually the easiest way to find it in the field. This species was not observed during the 2002

survey efforts and is not expected to occur due to a lack of suitable clay or grassy habitats in the Study Area.

4.6.4.18 Santa Susana Tarplant (*Deinandra minthornii*)

Santa Susana tarplant is a federal Species of Concern and a CNPS List 1B plant (plants rare, threatened, or endangered in California and elsewhere). It is a narrow endemic known from rocky openings in chaparral in the vicinity of Santa Susana pass and in the Santa Monica Mountains. Potential habitat including rock outcrops and openings in scrub are present within the Study Area; however, late season surveys did not detect this species. Santa Susana tarplant was not observed on the project site during year 2002 surveys and is not expected to occur within the Study Area because it is outside the known distribution for this species.

4.6.4.19 Slender-Horned Spineflower (*Dodecahema leptoceras*)

Slender-horned spineflower, a diminutive annual in the buckwheat family, is a state- and federally listed as endangered. This species is known to occur in Los Angeles, Riverside, and San Bernardino Counties, in high-energy washes and other sandy, open habitats along stream terraces in alluvial fan scrub (e.g., nearby in Tujunga Wash). Development, vehicles, and loss of historical flooding regimes threaten this plant. Slender-horned spineflower was not observed on the within the Study Area, and is not expected due to the lack of open habitats associated with larger stream or river terraces.

4.6.4.20 San Gabriel Mountains Dudleya (*Dudleya densiflora*)

San Gabriel Mountains dudleya is a succulent perennial in the stonecrop family designated as a List 1B plant by CNPS (plants rare, threatened, or endangered in California and elsewhere). This species is endemic to rocky cliffs in canyons along the south face of the San Gabriel Mountains at 4,000 to 9,300 feet. San Gabriel Mountains dudleya was not observed in the Study Area, and is not expected due to the lack of suitable cliff habitat.

4.6.4.21 Many-Stemmed Dudleya (*Dudleya multicaulis*)

Many-stemmed dudleya is a succulent perennial in the stonecrop family designated as a CNPS List 1B plant (plants rare, threatened, or endangered in California and elsewhere). This species is known from several southern California counties, and typically occurs in dry, stony places on heavy clay soils in chaparral, coastal sage scrub, and grassland habitats below 2,000 feet. This species is not known from the western end of the San Gabriel Mountains and has not been previously recorded in the Verdugo Hills. Sandy-clay soils and small outcrops occur within the Study Area and could provide potential habitat for this species. However, many-stemmed dudleya was not observed in the Study Area during focused surveys. Given the lack of detection and the range of this species, many-stemmed dudleya is not expected to occur.

4.6.4.22 Palmer's Grappling Hook (*Harpagonella palmeri*)

Palmer's grappling hook is a CNPS List 4 plant (watch list). It has a broad range across cismontane southern California and extends east into Arizona and northwestern Mexico, but is most common in Orange County and San Diego County. It prefers clay soils on dry slopes and mesas in coastal sage scrub openings and grasslands from 75 to 3,000 feet in elevation. It is easily found after fires in sparsely vegetated openings and outcrops in native grasslands when present. This species was not observed in the Study Area during focused surveys, and is not expected to occur in the Verdugo Hills.

4.6.4.23 Los Angeles Sunflower (*Helianthus nuttallii* ssp. *parishii*)

Los Angeles sunflower is a CNPS list 1A species (previously presumed extinct and potentially rediscovered along the Santa Clara River in the Newhall area in Los Angeles County) that historically was known from brackish, alkali, or salt marshes. One historic occurrence was known from the Pasadena area. Suitable habitat for this species is not present in the Study Area. This species was not detected during surveys and could not occur due to a lack of suitable habitat.

4.6.4.24 Southwestern Spiny Rush (*Juncus acutus* ssp. *leopoldii*)

The southwestern spiny rush ranges from San Luis Obispo County to Baja, California, and extends into Colorado Desert (alkali sink) and southeastern Arizona; it is also reported from South America and southern Africa. It occupies moist saline places in coastal marshes, and brackish locales with alkaline soils in a number of plant communities, including dunes, alkaline seeps and meadows, coastal salt marshes and swamps, and riparian marshes. Since the spiny rush could occur along drainages with willow and sycamore vegetation, we included it in our list of target plants for the survey program. This large, rigid, sharp tipped, perennial herb was not detected during general or focused surveys and it not expected to occur within the Study Area.

4.6.4.25 Fragrant Pitcher Sage (*Lepechinia fragrans*)

Fragrant pitcher sage is a shrubby plant in the mint family designated as a CNPS List 4 plant (watch list). This species is known from the San Gabriel Mountains, the Santa Monica Mountains, and the Channel Islands in canyons dominated by chaparral. This sub-shrub was not observed in the Study Area during focused surveys and is not expected to occur there.

4.6.4.26 Robinson's Pepper Grass (*Lepidium virginicum* var. *robinsonii*)

Robinson's pepper grass is an annual plant in the mustard family designated as a CNPS List 1B plant (plants rare, threatened, or endangered in California and elsewhere). This species occurs in coastal sage scrub and chaparral from Los Angeles County to Baja California. Robinson's pepper grass was not observed in the Study Area during focused surveys conducted in 2002, and is not expected to occur there.

4.6.4.27 Davidson’s bushmallow (*Malacothamnus davidsonii*)

Davidson’s bushmallow is a distinctive shrub in the mallow family that occurs in and along sandy washes vegetated with coastal sage scrub, alluvial scrub, and occasionally in oak woodlands. This species is designated as a CNPS List 1B plant (plants rare, threatened, or endangered in California and elsewhere) and is known from nearby Tujunga Wash as well as Pacoima Wash. Marginal habitat for this species is associated with portions of La Tuna Canyon Wash; however, this easily detected distinctive shrub was not detected during surveys and is not expected to occur within the Study Area.

4.6.4.28 Small-Flowered Microseris (*Microseris douglasii* var. *platycarpha*)

The small-flowered microseris is a CNPS List 4 plant (watch list). Its range extends from Los Angeles County to Baja, California, and it also occurs on Santa Catalina and San Clemente Islands. This plant was not observed on the project site during focused surveys, and is not expected to occur in the Study Area due to lack of suitable habitat.

4.6.4.29 Chaparral Bear Grass (*Nolina cismontana*)

Chaparral Bear Grass, a *Yucca*-like dioecious subshrub, is a CNPS List 1B species (plants rare, threatened, or endangered in California and elsewhere). Its range extends from the coastal mountains of Ventura County, the Santa Ana Mountains in Orange County, to northern San Diego County. This easy-to-identify plant has sword-like leaves that are not spine-tipped. It was not located during focused surveys, and is not expected to occur in the Verdugo Hills region.

4.6.4.31 Golden-Rayed Daisy (*Pentachaeta aurea*)

The golden-rayed daisy was recently added to the CNPS inventory List 4 (watch list). Its range extends from the San Gabriel and San Bernardino Mountains south to northern Baja California. It prefers dry, open or grassy areas from 250 to 6000 feet in elevation, and is often associated with clay substrates. It grows in valley grasslands, chaparral, cismontane woodlands, coastal sage scrub, and coniferous forests. It was not detected during focused surveys, and is not expected in the Verdugo Hills region due to lack of extensive clay-rich soils.

4.6.4.31 Lyon’s Pentachaeta (*Pentachaeta lyonii*)

This state- and federally listed endangered annual is best known from the Conejo volcanic soils of the Santa Monica Mountains in Ventura County. It was included in the target species list since it is also known from the Simi Hills. Field surveys were coordinated with blooming times observed in the population in Moorpark, Ventura County. It was not detected during focused surveys, and is not expected to occur in the Verdugo Hills region due to lack of suitable substrate and/or habitat.

4.6.4.32 Chaparral Rein Orchid (*Piperia cooperi*)

The chaparral rein orchid was recently designated as a CNPS List 4 plant (watch list). It ranges from Ventura County south to Baja California and Sonora, Mexico. Its preferred microhabitat is dry shrublands or forests from 50 to 5,000 feet elevation. Where it occurs it is never common, occurring as a few individuals at most. It was carefully searched for in open chaparral and burn sites, but was not recorded during the survey program. It is not expected to occur in the Study Area based on the lack of detection.

4.6.4.33 Fish's Milkwort (*Polygala cornuta* var. *fishiae*)

Fish's milkwort is a shrubby perennial in the milkwort family, designated as a CNPS List 4 plant (watch list). This species is found throughout southern California and Baja California in shaded, rocky places in canyons below 3,000 feet, often in dense patches that increase the potential for detection. This distinctive shrub was not observed in the Study Area during focused surveys and is not expected to occur there based on the lack of detection.

4.6.4.34 Englemann's Oak (*Quercus englemannii*)

Englemann's oak is a CNPS List 4 species (watch list). This deciduous tree is found from Los Angeles County south into Baja California. It is associated with many plant communities, including chaparral, valley and foothill grassland, riparian woodland, and cismontane woodland. As with most other white oaks, Englemann's oak commonly hybridizes with other oaks, including California scrub oak (*Q. berberidifolia*) and leather oak (*Quercus durata* var. *gabrielensis*). GLA did not locate any trees of this species during focused surveys or during the tree survey program, and it is not likely present based on the lack of detection. However, a few Englemann-scrub oak hybrid shrubs (*Q. durata* x *Q. englemannii*) were identified on the project site, which would be expected since *Q. englemannii* has been documented from the Verdugo Mountain region.

4.6.4.35 Parish's Gooseberry (*Ribes divaricatum* var. *parishii*)

This gooseberry inhabits riparian woodlands at elevations of 200 to 350 feet. It is probably extinct in the wild, having last been seen in 1980. This easily detected plant was not observed during focused surveys.

4.6.4.36 Matilija Poppy (*Romneya coulteri*)

Coulter's matilija poppy is a CNPS List 4 species (watch list). Its range extends from Los Angeles County east to Riverside County, the Santa Ana Mountains in Orange County, and south to San Diego County. It occurs in dry washes and canyons away from the immediate coast (75 to 3,500 feet elevation), and prefers burn areas in chaparral. This easily detected plant with large flowers was not observed during focused surveys and is not expected to occur there due to the lack of detection.

4.6.4.37 Rayless Ragwort (*Senecio aphanactis*)

Rayless ragwort is an annual herb in the aster family, designated as a CNPS List 2 plant (plants, rare, threatened, or endangered in California, but more common elsewhere), and known from many localities in California. This species occurs on drying alkaline flats and open areas. This species was not observed within the Study area and is not expected to occur there due to the lack of alkaline habitat.

4.6.4.38 Salt Spring Checker Bloom (*Sidalcea neomexicana*)

The salt spring checkerbloom is a CNPS List 2 plant (plants, rare, threatened, or endangered in California, but more common elsewhere). It ranges from Santa Barbara County into Baja and Sonora Mexico. It was included in the target list of species due to the presence of seeps in the region. This distinctive species was not observed in the Study Area and is not expected to occur there due to the absence of alkaline habitats.

4.6.4.39 Sonoran Maiden Fern (*Thelypteris puberula* var. *sonorensis*)

Sonoran maiden fern is an annual herb in the thelypteris family, which designated as a CNPS List 2 plant (plants, rare, threatened, or endangered in California, but more common elsewhere). This species is known from approximately 10 sites in southern California, but is more common in Arizona and Mexico. Sonoran maiden fern occurs along streams and seeps below 1,500 feet. This species was not observed in the Study Area during focused surveys and is not expected to occur there due to the lack of suitable habitat.

4.6.4.40 Endemic Vernal Pool Flora

Vernal pools provide habitat for several State- or federally listed endemic plant species that are restricted to seasonally ponded depressions, including California Orcutt's grass (*Orcuttia californica*) and spreading navaretia (*Navarretia fossalis*), which have been recently reported from Los Angeles County. Vernal pools, and their endemic flora, do not occur in the Study Area.

4.6.5 Special-Status Lichens

Focused surveys were conducted for 61 special-status or uncommon lichen species with the potential to occur in the Study Area. None of these lichens were identified during focused surveys, and they were not collected during floristic surveys for vascular plants or recorded during the oak tree survey program. Conspicuously absent from the Study Area are the large foliose (leafy) and fruticose (bushy) lichens that are normally present on oaks and/or rock outcrops in undisturbed and unpolluted natural environments.

The lichen flora of the Verdugo Mountains and surrounding San Gabriel Mountain habitat areas is poorly developed. In fact, most habitats in the Study Area are entirely barren of any lichen growth or are severely impoverished in cover, diversity, and health or fertility. The poor development of the lichen flora in this region may partly be due to natural causes and

environmental factors, such as the prevalence of dry and/or exposed sites, but there are a number of other probable explanations, including air pollution, which are well documented in the literature. Definite evidence of the negative effects of air pollution on lichen diversity, abundance, fertility, and health have been documented for the San Gabriel Mountains^{44, 45, 46}. Historically, loss of species diversity, including taxa once common throughout southern California, such as *Evernia prunastri*, may be directly attributed to a rise in air pollution in the Los Angeles basin.^{47, 48} Other widespread and easy to identify species, including species that are relatively tolerant to oxidant air pollutants such as *Melanelia elegantula* and *Hypogymnia imshaugii*, have also been extirpated from the Canyon Hills region. Sustained pollution levels will continue to negatively impact the lichens of this region.⁴⁹

Lichen distribution is also greatly affected by substrate and fire history. Soils associated with the Study Area are chiefly composed of (a) the highly eroded Vista-Amargosa Association, which formed in material that was weathered in place from granitic rock, and (b) the Gaviota-Millsholm Association, which are excessively drained soils that formed in material that was weathered in place from sandstone. Due to the prevalence of easily eroded soils and crumbling decomposed granitic rocks, unstable substrates necessary for the persistence of well-developed soil and rock lichen communities is not found in the Study Area. *Texosporium sancti-jacobi*, a CDFG Species of Special Concern, which has been recently discovered in western Riverside County, requires long-term, stable soil surfaces conditions to persist.⁵⁰ It is also sensitive to fire.

Frequent and severe fires have also likely also negatively impacted the lichen flora in the Study Area. This is clearly evidenced by the poor development of lichens on oak trees in the deeper canyons. The tree survey program documented frequent fire scarring of bark that has led to a probable reduction in species diversity and a probable reduction in total percent cover of lichens on trees and shrubs. Fire has also been demonstrated to kill lichens on rocks. It can be inferred that air pollution effects and impaired regeneration of lichens on trees and rocks owing to fire has greatly diminished the diversity and abundance of lichens in the region.

⁴⁴ Nash III, T.H. and Sigal, L.L. 1998. Epiphytic lichens in the San Bernardino Mountains in relation to oxidant gradients. Chapter 9, pp. 223-234. In: Miller, P. and McBride, J. (eds.) Air Pollution Impacts in the Montane Forests of Southern California: A Case Study of the: San Bernardino Mountains. Ecological Studies vol. 134 New York Springer Verlag.

⁴⁵ Sigal, L. and T.H. Nash III. 1983. Lichen communities on conifers in southern California mountains: an ecological survey relative to oxidant air pollution. Ecology 64: 1343-1354.

⁴⁶ Neele, M. 1988. Lichens and air pollution in the San Gabriel Wilderness, Angeles National Forest, California. Earth Resources Monograph 13; 53 pp. Forest Service/USDA Region 5.

⁴⁷ Hasse, H.E. 1913. The lichen flora of southern California. Contributions from the United States National Herbarium, Vol. 17, Part I. Washington Government Printing Office. 133 pgs.:

⁴⁸ Boonpragob, K. and Nash III, T.H. 1991. Physiological responses of the lichen *Ramalina menziesii* Tayl. to the Los Angeles urban environment. Envir. Exp. Bot. 31: 229-238.

⁴⁹ Nash III, T.H. and L.L. Sigal. 1980. Sensitivity of lichens to air pollution with an emphasis on oxidant air pollutants. pp. 117-123. In: Miller, P.R. (tech. coord.) Proc. Symp. Effects of Air Pollutants on Mediterranean and Temperate Forest Ecosystems: an International Symposium. U.S.A. Gen. Tech. Rept. PSW-43.

⁵⁰ Riefner, R.E., Jr., G. Pratt, and R. Shlemon. In press. A rare lichen, and endangered butterfly, and open-habitat soils: interacting components that require protection in southern California. Crossosoma.

4.7 Native Trees

A Tree Inventory and Impact Analysis (“Tree Report”) was prepared for the Canyon Hills project site and the approximate southwest quarter of the Duke Property pursuant to (1) the Oak Tree Regulations set forth in Section 46.00 et seq. of the Los Angeles Municipal Code (LAMC) and (2) the “Instructions for Filing Tentative Tract Maps” (Items B.11 and B.12) issued by the City’s Department of Planning. The Oak Tree Regulations and the Tentative Tract Map filing guidelines require that all oak trees with diameters at breast height (DBH) of eight inches or greater and other trees with DBHs of 12 inches or greater that are located within 100 feet of the proposed limits of disturbance be identified and mapped on a site plan. The complete Tree Report is attached as Appendix B.

Of an estimated 1,382 native trees, including approximately 1,249 coast live oaks in the Study Area, GLA identified 425 coast live oaks with DBHs of eight inches or greater. A total of 133 western sycamores were identified in the Study Area of which 61 western sycamores with DBHs of 12 inches or greater within or adjacent to the development footprint in the Study Area. In addition to the coast live oak (*Quercus agrifolia*; & *Q. agrifolia* var. *oxyadenia*) and western sycamore (*Platanus racemosa*), a single southern California black walnut (*Juglans californica* var. *californica*) was observed with a trunk less than 5 inches DBH, which was therefore was not recorded during the tree survey program (this individual is appropriately addressed in Section 4.6.4, above).

4.7.1 Species Descriptions for Native Trees

Coast Live Oak

The coast live oak (*Quercus agrifolia*) is an evergreen tree common to valleys and lower elevation mountain slopes of coastal California, from Mendocino County to northern Baja. This is a slow-growing tree that commonly exceeds 250 years of age. It can grow to 100 feet tall and its canopy can exceed 100 feet in width. Its acorn production and large size lend itself well to support of a large number of invertebrate and vertebrate animal species. The dark green leaves are 0.8 to 4 inches long and are oval and convex with spiny margins. The acorns are 0.8 to 1.6 inches long and are elongated into a narrow cone with a pointed tip. The bark is smooth and gray on the outside and reddish on the inside, at the furrows in the bark.

Southern California Black Walnut

Southern California black walnut (*Juglans californica* var. *californica*) commonly occurs with the coast live oak in many plant communities on the site. Regionally, the distribution of the walnut is patchy, occurring from the Santa Monica Mountains south to the Santa Ana River. In many areas, particularly along the southern edge of the Transverse Ranges, the walnut has been replaced by development. The tree grows to nearly 75 feet tall and the leaves are pinnately compound, with individual leaflets of three to ten cm in length. This species produces nutritious