W 14e

STATE OF CALIFORNIA – THE RESOURCES AGENCY

Arnold Schwarzenegger, *Governor*

CALIFORNIA COASTAL COMMISSION
SOUTH CENTRAL COAST AREA
89 SOUTH CALIFORNIA ST., SUITE 200
VENTURA, CA 93001
(805) 585-1800

ADDENDUM

DATE: August 7, 2007

TO: Commissioners and Interested Parties

FROM: South Central District Staff

SUBJECT: Agenda Item **W 14e**
Application No. **4-07-002 (California Dept. Parks & Recreation)**

The purpose of this addendum is to attach correspondence to the Commission received on August 7, 2007 from the Topanga Association for a Scenic Community and the Topanga Creek Watershed Committee, who are opponents to the proposed project.

RE: # 14E: 4-07-002

August 5, 2007

Dear California Coastal Commissioners:

The Topanga Association for a Scenic Community (TASC) and the Topanga Creek Watershed Committee have joined together in opposing a Coastal Commission permit for the proposed Rodeo Grounds Berm Removal Project. This extensive excavation proposal for Lower Topanga State Park raises significant concerns, including health and safety hazards, and was not intended to be undertaken until a general plan for this vast 1,659-acre addition to Topanga State Park was completed. Indeed, this project is specifically rejected in the Interim Management Plan for Lower Topanga. (Please see quoted references from the Interim Plan below.*)

No project of anything close to this scale was authorized in the Interim Plan. To ignore prohibitions against a project of this size is to knowingly make a travesty of the public-input process and to demonstrate bad faith on the part of several cooperating state agencies. It would bypass the spirit of prudent planning, in favor of chasing funding wherever it may lead; deliberately cut the public out of the process, and betray State Parks' prior commitments.

In the Interim Plan's executive summary, the plan itself is described as "full public disclosure of the Department's proposed actions." It goes on to assure the public that only "a number of small projects" and "data recovery to assist in subsequent planning efforts" would be undertaken.

Under no circumstances could the proposed berm removal be considered a "small project." The primary goal in the Interim Plan is "stabilizing the environment." Nowhere does restoration of the streambed or lagoon, or any phase of it, occur as an action item. In fact, removal of the berm was among alternatives considered (see photo p.37), and subsequently rejected in the final plan.

What we see here are the parochial interests of grant-paid agency staffers (however well-intentioned) driving the process and skewing broader public priorities to fit their particular specialties. Leadership at State Parks and here at the Coastal Commission should not abdicate their roles in protecting the public's right to participate in a comprehensive future plan for Lower Topanga, one that balances resource protection with public access, public safety, protection of historical resources, visitor services and even the creative reuse of some existing structures, which give the area a unique character.

Loss of the berm road eliminates an existing trail into the park, and could make a broad area of the property much more hazardous during heavy rains, when flooding often occurs. Currently, there is no trail-use plan for the area and access into the property is essentially unrestricted. One entrance leads directly into this area. A general plan could coordinate a public-use plan to accommodate restoration work.

There are also numerous hazards that the current proposal itself presents that should have been addressed in an EIR. Unearthing of 19,000 cubic yards of fill dirt, two-thirds of it identified as hazardous material, represents a danger to humans, air quality, the stream, and coastal waters– particularly if there is rain during the project. Since the park does not provide controlled access, there is no way to ensure people will not be exposed to these airborne contaminants, including lead dust.

Caltrans called it "a very extensive earth haul" and offered cautions about the dangers of trucks piling up at the intersection of Topanga Canyon Boulevard and PCH. (The intersection is also a public school bus stop and an MTA bus stop.)The project calls for 1,000 trucks making a wide circuit through sensitive habitat areas, establishing a continuous road where none currently exists. This will mean 2,000 separate truck turns into and out of the Lower Topanga property at a blind curve.

Wildlife surveys involving birds apparently have not been completed and only generic bird lists are offered in the proposal. There is no mention of Nighthawks, which are present there, and, with their preference for perching on the dirt roads, would be especially impacted by truck traffic and herbicide use. This close relative of the Whip-poor-will is beginning to show up on lists of birds in decline. Audubon lists them as significantly declining in Arizona, and the Cornell Lab of Ornithology says populations are decreasing dramatically in some areas. This is one place in Topanga where they have been observed regularly. It would be a shame to allow protection of relatively few steelhead to facilitate the decline of other species.

We are also concerned about the status of previous State Parks commitments regarding mature tree removals and herbicide use. These commitments, made at a hearing before the Santa Monica Bay Restoration Commission, include confining removal of non-native mature trees to the berm area itself and not the surrounding 10 acres. This would save about 100 trees out of 136 trees originally to be cut down, and would better comply with restrictions in the Interim Plan. Similarly, it is our recollection that herbicides would not be used on this project. Months after that hearing, we were informed by RCD staff that the application for funding had been pulled. Its resurrection has come as a surprise.

Controversy over the difference between damaging invasive species such as arundo donax and merely atypical plants and tree species should be addressed in a general planning forum. Issues of aesthetics, as well as unacknowledged environmental impacts of wholesale eradication, are reasonable public concerns and were appropriately deferred in the Interim Plan for a more full consideration in a general plan.

If this project goes forward, the public role in park planning becomes nothing but a perfunctory sham. We are told this plan is State Parks' top priority now, but that it will still be summer 2008 before a public process is begun. These kinds of delays should not be rewarded by allowing a massive project like this to go forward with no public involvement.

Habitat protection and preservation will certainly be common goals in a general plan, but the methods, timing and overall scale of restoration strategies are reasonable subjects for public discussion. To date, there has been no State Parks public planning forum for consideration of this proposal.

We urge you to reject this irresponsible piecemeal project that far exceeds the work authorized in the Lower Topanga Interim Plan. Don't let our resource protection agencies take on the failings we've seen in public works departments and the Army Corp of Engineers, where the bias is always in favor of doing projects. If they do so, much money will be wasted, their popularity and goodwill will quickly erode – and important future resource-protection efforts will be sacrificed as a result. Many local residents and commuters, unprepared for this project, are likely to be shocked by what they see if it should go forward. It would look like a massive grading operation, with disappearing tall trees that have defined the viewshed of Lower Topanga for many years. Lower Topanga is too complex and too promising a park to rush ahead with no overall plan. Let the people have a voice.

Sincerely,

Roger Pugliese
Chair
Topanga Association for a Scenic Community TASC

Ben Allanoff
Acting Chair
Topanga Creek Watershed Committee

*Notes:

Lower Topanga Interim Management Plan

Non-removal of roads
Page 15, action 1f: "Roadways will not be restored to natural conditions during the interim period." Rodeo Grounds Road, which is the berm, is among four roads listed.

Later, it states: "Final disposition of roads will be addressed in future management plans and subject to further review under CEQA."

Elsewhere it is explained that the roads will be used as trails for public use and access roads for park operations and emergency vehicles.

Limits on restoration

Page 16: State Parks will "continue to actively participate in and support planning efforts and studies that will result in restored natural processes....These planning efforts will, most significantly include lagoon restoration and streambed restoration feasibility studies."
Page 37 under Alternatives Considered:
It is "not feasible yet to implement final lagoon and streambed restoration during the interim period." The accompanying photograph depicts the Rodeo Grounds berm.
Page 57 and 58 place restoration under a "Research and Monitoring" heading, not under "Onsite Improvements" or "Operations and Management."

Limits on vegetation removal
Page 39, on the risks of wholesale removal of non-native vegetation: "Sudden wholesale alterations to a landscape can cause negative effects like erosion and wildlife displacement."

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W 14e

Filed:	6/28/07
49th Day	8/16/07
180th Day:	12/25/07
Staff:	D. Christensen
Staff Report:	7/19/07
Hearing Date:	8/8/07
Commission Action:	

STAFF REPORT: REGULAR CALENDAR

APPLICATION NO.: 4-07-002

APPLICANT: California Department of Parks and Recreation (DPR)

AGENTS: Suzanne Goode, DPR
Rosi Dagit, Resource Conservation District of the Santa Monica Mountains

PROJECT LOCATION: Lower Topanga Creek, near Topanga Canyon Blvd. and Pacific Coast Highway, Santa Monica Mountains, Los Angeles County.

PROJECT DESCRIPTION: Implement a berm removal and floodplain restoration project along the west bank of lower Topanga Creek within Topanga State Park.

SUMMARY OF STAFF RECOMMENDATION

Staff recommends **approval** of the proposed project with seven special conditions regarding: (1) biological monitoring, (2) restoration implementation, monitoring, and native tree mitigation, (3) native bird and raptor protection measures, (4) herbicide use, (5) required approval, (6) project responsibilities and timing, and (7) archaeological monitoring. The standard of review for the proposed project is the Chapter Three policies of the Coastal Act. In addition, the policies of the certified Malibu – Santa Monica Mountains Land Use Plan (LUP) serve as guidance. As conditioned, the proposed project is consistent with all applicable Chapter Three policies of the Coastal Act.

SUBSTANTIVE FILE DOCUMENTS: Malibu/Santa Monica Mountains Certified Land Use Plan; "Rodeo Grounds Berm Removal Study and Soil Characterization" by GeoPentech, dated April 2005; Letter from California Department of Transportation, dated August 24, 2006, stating the berm removal will have negligible effect on Topanga Creek Bridge downstream at Pacific Coast Highway; "Traffic Control Plans for Rodeo Grounds Berm Removal" by Katz, Okitsu & Associates, dated September 19, 2006; "Rodeo Grounds Restoration and Revegetation Plan" by Suzanne Goode of State Parks, dated August 2006; "Oak Tree Report and Native Tree Preservation and Removal Plan" by Rosi Dagit of Santa Monica Mountains Resource Conservation District, dated August 2006; "Vascular Plants Observed at Rodeo Grounds Restoration Area" by Carl Wishner (Envicom), dated April 20, 2005; "Storm Water Pollution Prevention Plan for Topanga Creek Restoration Project" by Randy Chapman, P.E., dated June 7, 2007; "Stream Diversion Plan" by State Parks, dated April 2007; "Topanga State Park Archaeological Test Trenching Report" by State Parks archaeologist Marla Mealey, dated October 4, 2005; "Lower Topanga Canyon Acquisition Interim Management Plan, Cultural Resources Survey and Historical Resources Evaluation Report" by State Parks archaeologist Marla Mealey, dated 2001; "Wetland Delineation Survey" by Josh Burnam and Ken Wong (USACE), and Carl Wishner (Envicom); "Mitigated Negative Declaration for the Rodeo Grounds Berm Removal and Restoration Project" by Envicom Corporation, dated September 2006; Comments and Recommendations Letter Regarding Berm Removal from Clean Harbors Environmental Services Inc., dated October 11, 2005; CDP No. 4-04-089 (State Parks); CDP

No. 4-02-194-W; CDP No. 4-03-021-W; Topanga Creek Watershed and Lagoon Restoration Feasibility Study by Moffatt & Nichols Engineers, dated 2002.

APPROVALS: Draft California Department of Fish and Game Streambed Alteration Agreement No. 1600-2007-0008-R5, dated July 19, 2007; California Department of Transportation Approval Letter, dated August 24, 2006; California Regional Water Quality Control Board Clean Water Act Section 401 Water Quality Certification (File No. 07-004), dated July 20, 2007; NOAA/National Marine Fisheries Service, Section 7 Consultation, Concurrence Letter dated July 25, 2007.

I. STAFF RECOMMENDATION

MOTION: ***I move that the Commission approve Coastal Development Permit No. 4-07-002 pursuant to the staff recommendation.***

STAFF RECOMMENDATION OF APPROVAL:

Staff recommends a **YES** vote. Passage of this motion will result in approval of the permit as conditioned and adoption of the following resolution and findings. The motion passes only by affirmative vote of a majority of the Commissioners present.

RESOLUTION TO APPROVE THE PERMIT:

The Commission hereby approves Coastal Development Permit No. 4-07-002 for the proposed development and adopts the findings set forth below on grounds that the development as conditioned will be in conformity with the policies of Chapter 3 of the Coastal Act and will not prejudice the ability of the local government having jurisdiction over the area to prepare a Local Coastal Program conforming to the provisions of Chapter 3. Approval of the permit complies with the California Environmental Quality Act because either 1) feasible mitigation measures and/or alternatives have been incorporated to substantially lessen any significant adverse effects of the development on the environment, or 2) there are no further feasible mitigation measures or alternatives that would substantially lessen any significant adverse impacts of the development on the environment.

II. STANDARD CONDITIONS

1. Notice of Receipt and Acknowledgment. The permit is not valid and development shall not commence until a copy of the permit, signed by the permittee or authorized agent, acknowledging receipt of the permit and acceptance of the terms and conditions, is returned to the Commission office.

2. Expiration. If development has not commenced, the permit will expire two years from the date on which the Commission voted on the application. Development shall be pursued in a diligent manner and completed in a reasonable period of time. Application for extension of the permit must be made prior to the expiration date.

3. Interpretation. Any questions of intent or interpretation of any term or condition will be resolved by the Executive Director or the Commission.

4. Assignment. The permit may be assigned to any qualified person, provided assignee files with the Commission an affidavit accepting all terms and conditions of the permit.

5. Terms and Conditions Run with the Land. These terms and conditions shall be perpetual, and it is the intention of the Commission and the permittee to bind all future owners and possessors of the subject property to the terms and conditions.

III. SPECIAL CONDITIONS

1. Biological Monitoring

By acceptance of this permit, the applicants agree to have a qualified biologist or resource specialist survey and flag the work area, and any sensitive tree or plant species to be avoided during work, prior to construction activity. The applicants also agree to have a qualified biologist or resource specialist on-site during all grading activities to monitor the work and to ensure that sensitive biological resources are protected. The environmental resource specialist shall require the applicants to cease work should any breach in permit compliance occur, or if any unforeseen sensitive habitat issues arise. The environmental resource specialist(s) shall immediately notify the Executive Director if activities outside of the scope of Coastal Development Permit 4-07-002 occur. If significant impacts or damage occur to sensitive habitats or to wildlife species, the applicants shall be required to submit a revised, or supplemental, program to adequately mitigate such impacts. The revised, or supplemental, program shall be processed as an amendment to this coastal development permit.

2. Restoration Implementation, Monitoring, and Native Tree Mitigation

By acceptance of this permit, the applicants agree to implement the proposed "Rodeo Grounds Restoration and Revegetation Plan" (Goode, 2006). Planting should be of native plant species indigenous to the Santa Monica Mountains using accepted planting procedures. All native plant species shall be of local genetic stock. The plan shall be carried out under the direction of qualified biologist or resource specialist. Successful site restoration shall be determined if the revegetation of native plant species on site is adequate to provide 90% coverage by the end of the five (5) year monitoring period and is able to survive without additional outside inputs, such as supplemental irrigation. In addition, the applicants agree to implement the proposed "Native Tree Preservation and Removal Plan" (Dagit, 2006)) to preserve, if feasible, six on-site sycamore trees located within the berm and mitigate for the loss of two toyon, one elderberry, one coast live oak, one cottonwood, one walnut, and approximately 30 willow trees.

The applicant shall submit, upon completion of the initial planting, a written report prepared by a qualified resource specialist, for the review and approval of the Executive

Director, documenting the completion of the initial planting/revegetation work. This report shall also include photographs taken from pre-designated sites (annotated to a copy of the site plans) documenting the completion of the initial planting/revegetation work.

Five years from the date of issuance of this coastal development permit, the applicant shall submit for the review and approval of the Executive Director, a Restoration Monitoring Report, prepared by a qualified biologist or Resource Specialist, that certifies the on-site restoration is in conformance with the restoration plan approved pursuant to this Special Condition. The monitoring report shall include photographic documentation of plant species and plant coverage.

If the monitoring report indicates the vegetation and restoration is not in conformance with or has failed to meet the performance standards specified in the restoration plan approved pursuant to this permit, the applicant, or successors in interest, shall submit a revised or supplemental restoration plan for the review and approval of the Executive Director. The revised restoration plan must be prepared by a qualified biologist or Resource Specialist and shall specify measures to remediate those portions of the original plan that have failed or are not in conformance with the original approved plan.

3. Native Bird and Raptor Protection Measures

A qualified biologist, with experience in conducting bird surveys, shall conduct bird surveys 30 days prior to construction to detect any protected native birds in the vegetation to be removed and any other such habitat within 200 feet of the construction area. The last survey should be conducted 3 days prior to the initiation of clearance/construction. If a protected native bird is found, the applicant should delay all clearance/construction disturbance activities in suitable nesting habitat or within 200 feet of nesting habitat until August 31 or continue the surveys in order to locate any nests. If an active nest is located, clearing/construction within 200 feet shall be postponed until the nest(s) is vacated and juveniles have fledged and there is no evidence of a second attempt at nesting. Limits of construction to avoid a nest shall be established in the field with flagging and stakes or construction fencing. Construction personnel shall be instructed on the sensitivity of the area. The project biologist shall record the results of the recommended protective measures described above to document compliance with applicable State and Federal laws pertaining to protection of native birds.

In addition, a qualified biologist shall conduct a site survey for any active raptor nests two weeks prior to any construction. If an active raptor nest is located, then no construction work shall be conducted within a 200 foot radius from the nest until the young have fledged and are independent of the adults.

4. Herbicide Use

Herbicides shall not be used within any portion of the stream channel as measured from toe of bank to toe of bank. Herbicide use shall be restricted to the use of Glyphosate Aquamaster™ (previously Rodeo™) herbicide for the elimination of non-native and invasive vegetation located within the project site for purposes of habitat restoration only. The applicants shall remove non-native or invasive vegetation by hand and the stumps may be painted with Glyphosate Aquamaster™ herbicide. Herbicide application by means of spray shall not be utilized. No use of any herbicide shall occur during the rainy season (November 1 – March 31) unless otherwise allowed by the Executive Director for good cause. In no instance shall herbicide application occur if wind speeds on site are greater than 5 mph or 48 hours prior to predicted rain. In the event that rain does occur, herbicide application shall not resume again until 72 hours after rain.

5. Required Approval

Within 60 days of the issuance of the Coastal Development Permit, the applicant shall provide the Executive Director of the Commission with a valid Section 404 Permit, or other authorization if required, from the U.S. Army Corps of Engineers for the project. The Executive Director may extend this time for good cause. Any project changes resulting from the Corps approval shall not be incorporated into the project until the applicant obtains any necessary amendments to this coastal development permit, unless the Executive Director determines that no amendment is required.

6. Project Responsibilities and Timing

The permittee shall comply with the following work-related requirements:

(a) Excavation and grading shall take place only during the dry season (April 1 – October 31). This period may be extended for a limited period of time if the situation warrants such a limited extension, if approved by the Executive Director.

(b) Prior to commencement of any work approved by this permit, the work area shall be flagged to identify limits of construction and identify natural areas off limits to construction traffic. All temporary flagging, staking, and fencing shall be removed upon completion of the project.

(c) No construction materials, debris, or waste shall be placed or stored where it may be subject to erosion and dispersion or encroach into a habitat area or drainage.

(d) Construction materials, chemicals, debris, and sediment shall be properly contained and secured on-site to prevent the unintended transport of material, chemicals, debris, and sediment into habitat areas and coastal waters by wind, rain, or tracking. Best Management Practices and Good Housekeeping Practices, designed to prevent spillage and/or runoff of construction-related materials and to contain sediment and contaminants associated with the construction activity, shall be implemented prior to the on-set of such activity. All BMPs contained in the proposed Storm Water Pollution Prevention Plan (June 2007), as well as those required by

DFG, RWQCB, and USACE, shall be implemented and shall be maintained in a functional condition throughout the duration of the project.

(e) Debris and excavated material shall be appropriately disposed at a legal disposal site. If the disposal site is located in the coastal zone, a coastal development permit or an amendment to this permit, shall be required before disposal can take place umless the Executive Director determines that no amendment or new permit is required.

(f) Debris and excavated material shall be removed from the project area as necessary to prevent the accumulation of sediment and other debris which may be discharged into habitat areas and coastal waters.

(g) Any and all debris resulting from construction activities shall be removed from the project site within 7 days of completion of construction.

7. Archaeological Monitoring

By acceptance of this permit, the applicants agree to have a qualified archaeologist(s) and appropriate Native American consultant(s) present on-site during all activities that involve grading, excavation or other subsurface work. The number of monitors shall be adequate to observe the activities of each piece of active earth moving equipment. Specifically, the earth moving operations on the project site shall be controlled and monitored by the archaeologist(s) and Native American consultant(s) with the purpose of locating, recording and collecting any archaeological materials. In the event that any significant archaeological resources are discovered during operations, grading work in this area shall be halted and an appropriate data recovery strategy be developed, subject to review and approval of the Executive Director, by the applicant's archaeologist, and the native American consultant consistent with CEQA guidelines.

IV. FINDINGS AND DECLARATIONS

The Commission hereby finds and declares:

A. PROJECT DESCRIPTION AND BACKGROUND

The proposed project is located along the west bank of lower Topanga Creek, on the west side of Topanga Canyon Boulevard, just north of Pacific Coast Highway (PCH) in the unincorporated portion of Los Angeles County (**Exhibits 1 and 9**). The project area along Topanga Creek is approximately 2,500 feet upstream from the Pacific Ocean. Access onto the project site is provided by Rodeo Grounds Lane, an unpaved roadway off Topanga Canyon Boulevard that traverses across Topanga Creek and along the on-site berm on the west bank of the creek.

Topanga Creek is a U.S. Geological Survey (U.S.G.S.) blueline stream that extends from Santa Monica Bay northward into the ridgelines of the Santa Monica Mountains and runs primarily from north to south. Lower Topanga Creek, in which the proposed

project is located, extends from the ocean to the town of Topanga approximately 4 miles upstream. The Topanga Creek Watershed covers 18 square miles (12,400 acres) on the southeastern side of the Santa Monica Mountains. It is the third largest of the 28 watersheds draining into Santa Monica Bay. The watershed is characterized by steep-sided canyons and narrow creek channels. Populations of endangered steelhead trout and tidewater goby have been documented in the watershed since 2001. Several other species of special concern, such as the Western Pond Turtle, the California Newt, the California Tree Frog and the Two Striped Garter Snake, are native to the watershed.

Near Topanga Creek's outlet to the Pacific Ocean is Topanga Lagoon, situated downstream of the project area. Historically Topanga Lagoon covered more than 30 acres. In 1934, Caltrans realigned Pacific Coast Highway (PCH) inland, placing over 800,000 cubic feet of fill material directly into the lagoon, reducing its surface area by 94% to its present day size of 2 acres. A comprehensive Topanga Creek Watershed and Lagoon Restoration Feasibility Study was completed in 2002 to identify ways to restore the creek and lagoon. The report's recommendations for lagoon and creek restoration served as a guide for development of the proposed restoration project.

The proposed project site is part of approximately 1,659 acres adjacent to the southwest boundary of Topanga State Park that the California Department of Parks and Recreation (DPR) acquired in 2001 to add to Topanga State Park (**Exhibit 2**). Topanga Creek is the dominant natural feature of the property as it runs over two miles through the heart of the acquisition area. A riparian corridor of varying widths and gradients parallels both sides of Topanga Creek, and is composed of sycamore woodlands, arroyo willow woodlands, and white alder woodlands. The southernmost end of this corridor is the flattest and widest, and includes 2.2 acres of remnant estuary and lagoon habitat, as well as riparian woodlands and fresh water marshes. The majority of the acquisition property consists of steep slopes covered by chaparral vegetation. In addition, the native vegetation along Topanga Creek provides suitable habitat and important wildlife movement connectivity to other areas of the Santa Monica Mountains.

The proposed project is situated along a disturbed section of Topanga Creek within this acquisition property of Topanga State Park. Numerous residential structures, that were constructed prior to the 1950's and the effective date of the Coastal Act, had been situated on the subject property's floodplain west of Topanga Creek. This development area is known as "Rodeo Grounds". After acquisition of the property by DPR, tenants of the Rodeo Grounds residences relocated and the structures were slated for phased demolition in anticipation of DPR's planned removal of a large berm feature and subsequent restoration of the creek's floodplain.

The Commission has approved three coastal development permit applications for structure demolition on the property. A De Minimus Waiver was approved in Application 4-02-194-W (2002) for the demolition of 19 vacant non-historic residential structures, removal of fences, miscellaneous site debris, and any hazardous material. A second De Minimus Waiver was approved in Application 4-03-021-W (2003) for the demolition of 27 vacant non-historic residential structures and 1 vacant non-historic structure,

removal of fences, miscellaneous site debris, any hazardous material, exotic vegetation, and minimal grading and revegetation. In addition, Coastal Development Permit Application No. 4-04-089 was approved by the Commission in 2005 for the phased demolition of up 28 additional existing structures on the site. While most have been removed, a few structures that were authorized for demolition by permit 4-04-089 still remain on the site at this time. However, DPR plans to remove those prior to the start of the proposed berm removal and restoration project that is the subject of this application.

The existing berm on the west bank of Topanga Creek on the subject property was constructed after a major flood event in the 1960's by tenants of the Rodeo Grounds homes, for which there is no record of permits or engineering/construction methods by which it was constructed. The berm's purpose was to divert flood waters and protect the existing residences. Additional fill material and asphalt was placed on the berm to further elevate the berm after another flood event in 1980, again without required permits (including coastal development permits). Portions of the berm banks consist of riprap grouted in place with concrete. The berm along Topanga Creek's west bank is now approximately 1,000 feet long and varies in width from 40 to 100 feet. The surface area of the berm is estimated to be 1.8 acres (80,000 sq. ft.).

According to the Topanga Creek Watershed and Lagoon Restoration Feasibility Study (Moffatt & Nichols, 2002), installation of the berm has resulted in several adverse impacts on lower Topanga Creek that include re-direction of the thalweg (the deepest part of the stream channel), obstruction of flows such that there has been sediment accumulation upstream of the berm, colonization of the disturbed area by *Arundo donax*, and sub-surface stream flows which interrupt fish passage and reduce potential rearing habitat for steelhead smolts. The proposed project consists of removal of the on-site berm and subsequent restoration of the creek's natural floodplain, creek channel, sediment transport systems, and natural riparian and transitional upland habitats. No hardscape or park facilities are proposed. Rather, the project's sole purpose is to remove the berm and allow for restoration of the natural creek channel and floodplain in this location.

Proposed Berm Removal

The berm on the western bank of Topanga Creek is trapezoidal in shape, measuring approximately 1,000 feet in length and varying in width between 40 to 100 feet (**Exhibit 3**). Total surface area of the berm is approximately 80,000 square feet (1.8 acres), with a height ranging from 12 to 14.5 feet. The estimated volume of the berm is 520,000 cubic feet (or 19,000 cubic yards), with a total weight of approximately 26,000 tons consisting of soils and other fill materials, such as asphalt, which is proposed to be removed and disposed of as part of the proposed project. Portions of the berm bank are covered with concrete and riprap. Preliminary soil testing indicates that an estimated 17,000 tons of the berm qualify as non-Resource Conservation and Recovery Act (RCRA) California hazardous waste, due to lead contamination. Any waste that does not meet the definition of hazardous waste in RCRA, but is still a hazardous chemical, is a non-RCRA hazardous waste. The remaining 9,000 tons of fill materials qualifies as

non-hazardous material. The source of the lead contamination is not known, but it is speculated that the imported berm fill came from a road demolition site elsewhere and was contaminated prior to being imported to the subject site. Although the berm is largely lead-contaminated, the soils and hazardous soil removal consultants indicate that the lead has not spread through the entire berm and surface and ground water in the area has not been contaminated.

It is proposed that the berm's fill material be excavated down to the native creek bed material, separated based on hazardous material testing, and then disposed of at an appropriate landfill/waste collection facility. Excavation and loading equipment will operate from the top of the fill bank, requiring no intrusion into the existing streambed. Best Management Practices (BMPs) for erosion, pollution, and sediment control are proposed to avoid adverse impacts to the stream channel. Existing roads will be used to transport equipment and a temporary stream crossing consisting of metal plates will be installed where the road traverses Topanga Creek. The metal plates are proposed to be placed across the creek in order to minimize erosion of the creek bed from the heavy equipment. Existing disturbed areas of the upland portions of the site will be used for staging and temporary stockpile of fill (**Exhibits 4-5**). The applicant estimates that the proposed berm removal will take approximately 40 days to complete. All proposed work will take place during the dry season. The creek channel adjacent to the berm is currently dry, and it is anticipated that it will remain dry for the duration of berm removal work. However, in case there is surface flow or pooling in the stream channel at the time of proposed berm removal, the applicants plan to install a temporary sandbag and visquine barrier to divert the flow to the opposite side of the channel and isolate the work area from the stream water.

Proposed Habitat Restoration

Vegetation in the project area currently consists of a mixture of remnant wetland species, disturbed riparian assemblages, several mature native trees, large stands of the invasive giant reed (*Arundo donax*), and other non-native exotic species. Some of native trees have grown on top of the berm and will need to be removed along with the fill material. These include two toyon, one elderberry, one coast live oak, one cottonwood, one walnut, and approximately 30 willows. There are also six sycamore trees in the berm that were observed to be isolated enough from the fill that preservation will be attempted during excavation work (**Exhibit 7**). The applicants have submitted a Revegetation and Restoration Plan (Goode, 2006) that describe the type and location of proposed restoration planting in the project area, including native tree mitigation planting (**Exhibits 6-7**).

Once the berm impediment is removed to expose the native creek bed material, the creek will be allowed to reclaim its former channel as defined by the remnant bank. The disturbed upland areas of the site will be graded as needed to match the contour of the existing slopes. The upland slope will be planted with a mix of coastal sage scrub species and native trees. The lower floodplain area will be planted with a mix of coastal sage scrub and riparian edge species. Revegetation along the new stream bank will

utilize a mix of southern willow scrub and wetland-associated species. Exotic and invasive plant species are proposed to be removed from the entire project area. Removal of exotic vegetation and revegetation with natives will restore the natural creek channel habitats, restore all disturbed acreage (including wetland/riparian floodplain), allow removal of storm-generated sediment that has built up, and restore above-surface creek flow. Ultimately, the project is expected to provide summer rearing habitat and improve over-winter habitat and critical passage links for the endangered southern steelhead trout between the main stem of Topanga Creek and the ocean. Other terrestrial and aquatic wildlife will benefit as well.

Biological and wetland delineation surveys conducted in the project area conclude that the project's total area of direct impact encompasses an estimated 1.81 acres, which includes the 80,000 square feet (1.8 acres) of berm and 435 square feet (0.01 acres) of delineated marginal wetland along a portion of the berm bank. However, removal of the berm will result in restoration of over 12 acres of floodplain that will include riparian, wetland, and upland habitats (**Exhibit 9**). The project will result in permanent restoration and protection of the lower Topanga Creek corridor, which is significant habitat for the federally endangered southern steelhead trout and tidewater goby, as well as other aquatic species of concern.

Cultural Resources

No archaeological sites or features are known or recorded within the immediate project area, however, an archaeological site (CA-LAN-133) was recorded in the vicinity, at the mouth of Topanga Canyon, in 1905. Additionally, Lower Topanga Canyon has been designated a sacred site by local Native American groups and is on the list of sacred lands maintained by the California Native American Heritage Commission. Both surface and subsurface archaeological surveys have been conducted by DPR in the project area, in coordination with Tongva-Gabrielino monitors, and no cultural resources were observed. However, the applicants propose archaeological monitoring during all excavation and grading work as part of the project to ensure protection of cultural resources that may be found.

Other Approvals

The project has been reviewed by the California Department of Fish & Game (DFG) and the DFG has entered into a stream alteration agreement (No. 1600-2007-0008-R5) with the applicant. This agreement contains 71 provisions which include the following:

- Mitigation for areas of permanent disturbance shall be implemented as proposed in the applicant's Restoration and Revegetation Plan.
- A biological monitor shall be present during work and shall survey for the presence of any state and federally listed threatened or endangered species or state species of special concern, prior to site preparation and continuing through all clearing, grubbing, and rough grading activities.

- If the project cannot avoid the breeding/nesting bird season (March 1 to September 1), weekly bird surveys must be conducted to detect any protected native birds in the jurisdictional areas and within 500 feet of the jurisdictional areas in riparian habitat adjacent to the streambed. Survey findings shall be reported to the DFG.
- If the project cannot avoid the raptor nesting season (January 31 to August 1), a bird survey must be conducted two weeks prior to any work. Measures must be taken to protect any nests, including no work within 500 feet of any active nests.
- Giant cane (*Arundo*) shall be cut to a height of 6 inches or less and the stumps painted with an herbicide approved for aquatic use within 5 minutes of cutting.

The Regional Water Quality Control Board has issued a Clean Water Act Section 401 Water Quality Certification for the proposed project, dated July 20, 2007. The certification contains various conditions, which include the following:

- Restoration, including grading of disturbed areas to pre-project contours and revegetation with native species, shall be implemented for the temporary impacts to 0.01 acres of waters of the United States.
- Submission of annual mitigation monitoring reports each year for a period of five years after planting.
- All open space and mitigation areas shall be placed within a conservation easement to ensure preservation in perpetuity.
- Implementation of all necessary control measures and best management practices to prevent degradation of water quality from the proposed project.

The project requires a Section 404 permit from the United States Army Corps of Engineers (USACE). The proposed project was referred by the ACOE for review by the United States National Marine Fisheries Service (NMFS) to ensure that it will not adversely affect the endangered southern steelhead in Topanga Creek. Staff has received the consultation letter from NMFS, which states that NMFS concurs with the USACE determination that the project is not likely to adversely affect endangered southern California steelhead within Topanga Creek or its designated critical habitat. The determination was based on the understanding that steelhead would not be present in the project area at the time that the project will be implemented and that there are sufficient measures included in the project to minimize impacts downstream where steelhead may be rearing.

Environmental Review

After an Initial Study was performed for the proposed project, DPR, as lead agency in the CEQA review, found that the significant temporary impacts that potentially could occur as a result of the proposed project were less than significant with mitigation. A Mitigated Negative Declaration (Envicom, 9/2006) was then prepared that identified mitigation measures to reduce significant temporary impacts pertaining to air quality, noise (wildlife), water quality (sedimentation and erosion during earth movement operations), biological resources (native trees), and traffic (flow of trucks on and off the site during hauling operations).

B. ENVIRONMENTALLY SENSITIVE HABITAT, WATER QUALITY, AND STREAM ALTERATION

Section 30230 of the Coastal Act states:

> ***Marine resources shall be maintained, enhanced, and where feasible, restored. Special protection shall be given to areas and species of special biological or economic significance. Uses of the marine environment shall be carried out in a manner that will sustain the biological productivity of coastal waters and that will maintain healthy populations of all species of marine organisms adequate for long-term commercial, recreational, scientific, and educational purposes.***

Section 30231 of the Coastal Act states that:

> ***The biological productivity and the quality of coastal waters, streams, wetlands, estuaries, and lakes appropriate to maintain optimum populations of marine organisms and for the protection of human health shall be maintained and, where feasible, restored through, among other means, minimizing adverse effects of waste water discharges and entrainment, controlling runoff, preventing depletion of ground water supplies and substantial interference with surface water flow, encouraging waste water reclamation, maintaining natural vegetation buffer areas that protect riparian habitats, and minimizing alteration of natural streams.***

Section 30236 of the Coastal Act states:

> ***Channelizations, dams, or other substantial alterations of rivers and streams shall incorporate the best mitigation measures feasible, and be limited to (l) necessary water supply projects, (2) flood control projects where no other method for protecting existing structures in the floodplain is feasible and where such protection is necessary for public safety or to protect existing development, or (3) developments where the primary function is the improvement of fish and wildlife habitat.***

Coastal Act Section 30240 affords protection of environmentally sensitive habitat areas as follows:

> ***(a) Environmentally sensitive habitat areas shall be protected against any significant disruption of habitat values, and only uses dependent on those resources shall be allowed within those areas.***
>
> ***(b) Development in areas adjacent to environmentally sensitive habitat areas and parks and recreation areas shall be sited and designed to prevent impacts which would significantly degrade those areas, and shall be compatible with the continuance of those habitat and recreation areas.***

Section 30107.5 of the Coastal Act defines an environmentally sensitive area as:

> ***"Environmentally sensitive area" means any area in which plant or animal life or their habitats are either rare or especially valuable because of their special nature or role in an ecosystem and which could be easily disturbed or degraded by human activities and developments.***

Sections 30230 and 30231 of the Coastal Act mandate that marine resources and coastal water quality shall be maintained and, where feasible, restored through, among other means, controlling runoff, preventing depletion of ground water supplies and substantial interference with surface water flows, maintaining natural buffer areas that protect riparian habitats, and minimizing alteration of natural streams. Special protection shall be given to areas and species of special significance, and uses of the marine environment shall be carried out in a manner that will sustain biological productivity of coastal waters. Section 30236 allows for alterations to streambeds when the primary function is the improvement of fish and wildlife habitat and the alteration incorporates the best mitigation measures feasible. In addition, Section 30240 of the Coastal Act states that environmentally sensitive habitat areas shall be protected and that development within or adjacent to such areas must be designed to prevent impacts which could degrade those resources.

When considering any area, such as the Santa Monica Mountains, with regard to an ESHA determination one must focus on three main questions:

1) Is a habitat or species rare?
2) Is the habitat or species especially valuable because of its special nature or role in the ecosystem?
3) Is the habitat or species easily disturbed or degraded by human activities and developments?

The Coastal Commission has found that the Mediterranean Ecosystem in the Santa Monica Mountains is itself rare and valuable because of its relatively pristine character, physical complexity, and resultant biological diversity. Therefore, habitat areas that provide important roles in that ecosystem are especially valuable and meet the second criterion for the ESHA designation.

In the Santa Monica Mountains, riparian woodland contains the greatest overall diversity of all the plant communities in the area, partly because of its multi-layered vegetation.[1] At least four types of riparian communities are discernable in the Santa Monica Mountains: walnut riparian areas, mulefat-dominated riparian areas, willow riparian areas and sycamore riparian woodlands. Of these, the sycamore riparian woodland is the most diverse riparian community in the area. In these habitats, the dominant plant species include arroyo willow, California black walnut, sycamore, coast live oak, Mexican elderberry, California bay laurel, and mule fat. Wildlife species that have been observed in this community include least Bell's vireo (a State and federally listed

[1] National Park Service. 2000. Draft: General Management Plan & Environmental Impact Statement, Santa Monica Mountains National Recreation Area, US Dept. of Interior, National Park Service, December 2000.

species), American goldfinches, black phoebes, warbling vireos, bank swallows (State listed threatened species), song sparrows, belted kingfishers, raccoons, and California and Pacific tree frogs.

Riparian communities are the most species-rich to be found in the Santa Monica Mountains. Because of their multi-layered vegetation, available water supply, vegetative cover and adjacency to shrubland habitats, they are attractive to many native wildlife species, and provide essential functions in their lifecycles[2]. During the long dry summers in this Mediterranean climate, these communities are an essential refuge and oasis for much of the areas' wildlife.

Riparian habitats and their associated streams form important connecting links in the Santa Monica Mountains. These habitats connect all of the biological communities from the highest elevation chaparral to the sea with a unidirectional flowing water system, one function of which is to carry nutrients through the ecosystem to the benefit of many different species along the way.

The streams themselves provide refuge for sensitive species including: the coast range newt, the Pacific pond turtle, and the steelhead trout. The coast range newt and the Pacific pond turtle are California Species of Special Concern and are proposed for federal listing[3], and the steelhead trout is federally endangered. The health of the streams is dependent on the ecological functions provided by the associated riparian woodlands. These functions include the provision of large woody debris for habitat, shading that controls water temperature, and input of leaves that provide the foundation of the stream-based trophic structure.

The importance of the connectivity between riparian areas and adjacent habitats is illustrated by the Pacific pond turtle and the coast range newt, both of which are sensitive and both of which require this connectivity for their survival. The life history of the Pacific pond turtle demonstrates the importance of riparian areas and their associated watersheds for this species. These turtles require the stream habitat during the wet season. However, recent radio tracking work[4] has found that although the Pacific pond turtle spends the wet season in streams, it also requires upland habitat for refuge during the dry season. Thus, in coastal southern California, the Pacific pond turtle requires both streams and intact adjacent upland habitats such as coastal sage scrub, woodlands or chaparral as part of their normal life cycle. The turtles spend about four months of the year in upland refuge sites located an average distance of 50 m (but up to 280 m) from the edge of the creek bed. Similarly, nesting sites where the females lay eggs are also located in upland habitats an average of 30 m (but up to 170 m) from

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[2] Walter, Hartmut. Bird use of Mediterranean habitats in the Santa Monica Mountains, Coastal Commission Workshop on the Significance of Native Habitats in the Santa Monica Mountains. CCC Hearing, June 13, 2002, Queen Mary Hotel.

[3] USFWS. 1989. Endangered and threatened wildlife and plants; animal notice of review. Fed. Reg. 54:554-579. USFWS. 1993. Endangered and threatened wildlife and plants; notice of 1-year petition finding on the western pond turtle. Fed. Reg. 58:42717-42718.

[4] Rathbun, G.B., N.J. Scott and T.G. Murphy. 2002. Terrestrial habitat use by Pacific pond turtle in a Mediterranean climate. Southwestern Naturalist. (*in Press*).

the creek. Occasionally, these turtles move up to 2 miles across upland habitat[5]. Like many species, the pond turtle requires both stream habitats and the upland habitats of the watershed to complete its normal annual cycle of behavior. Similarly, the coast range newt has been observed to travel hundreds of meters into upland habitat and spend about ten months of the year far from the riparian streambed[6]. They return to the stream to breed in the wet season, and they are therefore another species that requires both riparian habitat and adjacent uplands for their survival.

Riparian habitats in California have suffered serious losses and such habitats in southern California are currently very rare and seriously threatened. In 1989, Faber estimated that 95-97% of riparian habitat in southern California was already lost[7]. Writing at the same time as Faber, Bowler asserted that, *"[t]here is no question that riparian habitat in southern California is endangered."*[8] In the intervening 13 years, there have been continuing losses of the small amount of riparian woodlands that remain. Today these habitats are, along with native grasslands and wetlands, among the most threatened in California.

In addition to direct habitat loss, streams and riparian areas have been degraded by the effects of development. For example, the coast range newt, a California Species of Special Concern has suffered a variety of impacts from human-related disturbances[9]. Human-caused increased fire frequency has resulted in increased sedimentation rates, which exacerbates the cannibalistic predation of adult newts on the larval stages.[10] In addition, impacts from non-native species of crayfish and mosquito fish have also been documented. When these non-native predators are introduced, native prey organisms are exposed to new mortality pressures for which they are not adapted. Coast range newts that breed in the Santa Monica Mountain streams do not appear to have adaptations that permit co-occurrence with introduced mosquito fish and crayfish[11]. These introduced predators have eliminated the newts from streams where they previously occurred by both direct predation and suppression of breeding.

Therefore, because of the essential role that riparian plant communities play in maintaining the biodiversity of the Santa Monica Mountains, because of the historical losses and current rarity of these habitats in southern California, and because of their extreme sensitivity to disturbance, the native riparian habitats in the Santa Monica Mountains meet the definition of ESHA under the Coastal Act, as detailed in **Exhibit 8**.

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[5] Testimony by R. Dagit, Resource Conservation District of the Santa Monica Mountains at the CCC Habitat Workshop on June 13, 2002.
[6] Dr, Lee Kats, Pepperdine University, personal communication to Dr J. Allen, CCC.
[7] Faber, P.A., E, Keller, A. Sands and B.M. Massey. 1989. The ecology of riparian habitats of the southern California coastal region: a community profile. U.S. Fish and Wildlife Service Biological Report 85(7.27) 152pp.
[8] Bowler, P.A. 1989. Riparian woodland: An endangered habitat in southern California. Pp 80-97 *in* Schoenherr, A.A. (ed.) Endangered plant communities of southern California. Botanists Special Publication No. 3.
[9] Gamradt, S.C., L.B. Kats and C.B. Anzalone. 1997. Aggression by non-native crayfish deters breeding in California newts. Conservation Biology 11(3):793-796.
[10] Kerby, L.J., and L.B. Kats. 1998. Modified interactions between salamander life stages caused by wildfire-induced sedimentation. Ecology 79(2):740-745.
[11] Gamradt, S.C. and L.B. Kats. 1996. Effect of introduced crayfish and mosquitofish on California newts. Conservation Biology 10(4):1155-1162.

The proposed project site is situated on the west bank of Topanga Creek on the subject property, approximately 2,500 feet inland from the Pacific Ocean. Topanga Creek is a U.S.G.S. designated blue-line stream and supports a well-developed riparian woodland which constitutes ESHA. The 1986 certified Malibu/Santa Monica Mountains Land Use Plan designates Topanga Creek and its associated riparian habitat as ESHA. However, in the proposed project area, the presence of the berm along the west creek bank and the former Rodeo Grounds residential development on the west bank floodplain has resulted in a highly disturbed riparian and transitional upland environment. According to the "Rodeo Grounds Restoration and Revegetation Plan" prepared by Suzanne Goode of DPR (July 2006), the existing condition of the project area consists of a mixture of disturbed riparian assemblages dominated by southern willow scrub along the berm and coastal sage scrub on the perimeter, remnant wetland species, and non-native exotic species in the area of the former structures. Over 100 non-native trees ranging from large eucalyptus to smaller fruit trees are present. Several large stands of giant reed/cane (*Arundo donax*) are also present. No sensitive or endangered plant species exist in the project area. In addition to the disturbed willow complex, several mature native trees, including sycamore, coast live oak, California walnut, toyon, Mexican elderberry, and cottonwood are also present in the area of the berm. While there is a number of native plant species present in the project area, previous artificial modifications to the creek's west bank and floodplain have created a highly disturbed riparian environment of minimal habitat value.

For all of the reasons discussed above, the Commission finds that Topanga Creek itself and undisturbed riparian areas adjacent to the project area meet the definition of ESHA under the Coastal Act, but the highly disturbed west bank in the area of the proposed project does not meet the definition of ESHA under the Coastal Act.

The Commission has consistently, through permit actions, required new structures to be sited and designed to minimize impacts to ESHA. Only resource dependent uses may be allowed within ESHA and development adjacent to ESHA must provide adequate buffers to serve as transitional habitat, to provide distance and separation from human intrusion.

In this case, the proposed project does not include the construction of any new structures. The proposed project is a berm removal and restoration project in order to restore the creek's natural floodplain, creek channel, sediment transport systems, and natural riparian and transitional upland habitats. As described above, the presence of the berm has resulted in several adverse impacts on the creek, including re-direction of the thalweg, obstruction of flows such that there has been sediment accumulation upstream of the berm, colonization of the disturbed area by the invasive giant reed species (*Arundo donax)*, and alteration of the sub-surface stream flows which has interrupted fish passage and reduced potential rearing habitat for steelhead smolts. No hardscape or park facilities are proposed. Rather, the project's sole purpose is to remove the berm and allow for restoration of the natural environment in this location. These actions are anticipated to result in direct benefits to endangered steelhead trout

which will then be able to access 3.3 miles of suitable habitat that is now seasonally restricted due to the sub-surface flows associated with the berm.

The proposed work will take place in areas that have obviously been disturbed over the years, both by the construction and maintenance of the existing structures, fuel modification and exotic landscaping, as well as the associated human alterations of the creek channel. As such, the area of the proposed project site is not considered ESHA. The removal of the berm and associated exotic vegetation, along with planting and hydroseeding with native species, will ultimately enhance the habitat value of lower Topanga Creek.

The proposed project consists of excavating the existing berm on the western bank of Topanga Creek and subsequent restoration and revegetation of the reformed creek bank and floodplain. The berm is approximately 1,000 feet in length, 40 to 100 feet in width, 12 to 14.5 feet in height, and a total surface area of approximately 80,000 square feet (1.8 acres). The estimated volume of the berm is 520,000 cubic feet (or 19,000 cubic yards), with a total weight of approximately 26,000 tons consisting of soils and other fill materials, such as asphalt, concrete and riprap, which is proposed to be removed and disposed of at an off-site location outside of the coastal zone. Preliminary soil testing indicates that an estimated 17,000 tons of the berm qualify as non-Resource Conservation and Recovery Act (RCRA) California hazardous waste, due to lead contamination. Any waste that does not meet the definition of hazardous waste in RCRA, but is still a hazardous chemical, is a non-RCRA hazardous waste. The remaining 9,000 tons of fill materials qualifies as non-hazardous material. Additional testing of the berm material will be done concurrently with excavation to direct proper disposal. During berm removal, excavation and loading equipment will work from the top of the fill bank of the berm and not encroach into the existing stream channel. Existing unpaved roads will be used to transport equipment. Existing disturbed upland areas will be used for staging and temporary stockpile of fill.

During the berm removal and restoration work, the applicants propose Best Management Practices (BMPs) for erosion, pollution, and sediment control to avoid adverse impacts to water quality. A Stormwater Pollution Prevention Plan has been prepared for the proposed project, which also describes numerous BMPs that will be employed during project construction. Work is proposed to take place only during the dry season. The creek channel adjacent to the berm is currently dry, and it is anticipated that it will remain dry for the duration of berm removal work. Conducting the work when the flows are absent or minimal during the dry season will prevent erosion into the creek, associated turbidity, and will minimize the potential for disturbing local amphibians and fishes. However, in case there is surface flow or pooling in the stream channel at the time of work, the applicants plan to install a temporary sandbag and visquine barrier to isolate the work area from the channel in order to prevent water quality impacts. Unless a large storm event occurs during excavation in which surface flows are restored and there is connectivity to the ocean, no fish will be present in this area of Topanga Creek at the time of work.

The project area is adjacent to the Topanga Creek channel that is considered to be ESHA and the potential exists for impacts to the water quality of the creek, particularly from erosion of sediment from the site. The sensitive habitats found in the stream and downstream of the project site could be adversely impacted by the proposed project through the introduction of excavated materials, chemicals, debris or sediment into the stream. Additionally, petroleum hydrocarbons including oil and grease from vehicles could be introduced to the stream through runoff. The discharge of these pollutants to coastal waters can cause cumulative impacts such as: eutrophication and anoxic conditions resulting in fish kills and diseases and the alteration of aquatic habitat including adverse changes to species composition and size; excess nutrients causing algae blooms and sedimentation increasing turbidity, which both reduce the penetration of sunlight needed by aquatic vegetation which provides food and cover for aquatic species; disruptions to the reproductive cycle of aquatic species; acute and sublethal toxicity in marine organisms leading to adverse changes in reproduction and feeding behavior; and human diseases such as hepatitis and dysentery. These impacts reduce the biological productivity and the quality of coastal waters, streams, wetlands, estuaries, and lakes and reduce optimum populations of marine organisms and have adverse impacts on human health. It is particularly critical that these impacts are avoided given the potential presence of endangered steelhead and tidewater goby in Topanga Creek and Lagoon.

With the applicant's proposed BMPs and control measures to protect water quality, impacts to Topanga Creek will be minimized. Therefore, the Commission finds it necessary to require the applicant to implement best management and good housekeeping practices as proposed, as well as those required by DFG, RWQCB, and USACE, as detailed in **Special Condition No. Six (6)** to further reduce potential impacts. Furthermore, excavated materials that are placed in stockpiles are subject to increased erosion. In order to ensure that excavated material will be limited to the designated temporary stockpile areas and be properly removed and disposed in a timely manner, **Special Condition No. Six (6)** also requires the applicants to properly contain, secure, and remove all debris and excavated material from the site.

Biological surveys conducted of the project area did not find any rare plant species or species of special concern. Despite the results of these surveys, it is possible for rare, threatened, endangered, or sensitive wildlife and plant species may be present in the project area during the time of construction. In order to ensure that the proposed activities minimize impacts on sensitive species, **Special Condition No. One (1)** requires the applicants to obtain the services of a qualified biologist or environmental resource specialist to survey the site prior to construction, and remain on site to monitor all project activities. Special Condition One (1) also requires the applicant to cease work should any breach in permit compliance occur, or should any unforeseen sensitive habitat issues arise. Special Condition One (1) further stipulates that if significant impacts or damage occur to sensitive habitats or to wildlife species, the applicant shall be required to submit a revised or supplemental program to adequately mitigate such impacts. In addition to the impacts discussed above, other impacts to Topanga Creek

and its habitats can result from the construction phase of the project. Construction activities could disturb raptors or other sensitive bird species if they are nesting close to the project site. In order to minimize any construction impacts to raptors and other native birds, the Commission finds it necessary to require the applicant to survey the area within 200 feet of the construction zone to detect the nests of any raptor or sensitive bird species, 30 days prior to the commencement of construction. If any such nests are found, measures must be taken to avoid impacts. These requirements are set forth in **Special Condition No. Three (3)**.

According to the applicant's proposed "Restoration and Re-vegetation Plan" (DPR, 2006), re-vegetation along the stream channel has been designed to promote the establishment of a wider channel in which the creek may move with variable flow events, to eventually create multiple smaller channels and benches, braiding, and various areas of scour and deposition. The re-contoured area of the berm will be re-vegetated using a mix of southern willow scrub and wetland-associated plant species. A mixture of plant cuttings and hydroseeding will be employed. Re-vegetation of the floodplain area above the bank will utilize a mix of coastal sage scrub and riparian species to match the dominant southern willow scrub community. Exotic and invasive plant species will be removed. The upland areas of the site, that will be used for staging and stockpiling during berm excavation, will be graded to match the contour of the adjacent natural slopes and re-vegetated with native upland plant and tree species. Jute netting will be used to hold slopes until plantings are established. Mitigation for the temporary impacts to stream bank and small marginal wetland area have been incorporated into the proposed restoration plan. To ensure that the proposed Restoration and Re-vegetation Plan will be implemented in accordance with the applicants' proposal, **Special Condition No. Two (2)** has been required. To ensure that the proposed revegetation effort is successful and that the subject area is adequately revegetated, **Special Condition Two (2)** also requires monitoring for a five year period, submission of a Restoration Monitoring Report at the end of the five year period for the review and approval of the Executive Director, and supplemental planting/seeding be implemented as necessary, to ensure successful restoration that is in compliance with the specified guidelines and performance standards outlined in the proposed restoration plan.

In addition, mitigation for the permanent impacts to native trees located in the berm have been incorporated into the proposed restoration plan. While some of the on-site native trees are sufficiently isolated from the fill materials of the berm and attempts will be made to preserve those trees in place, others have grown on top of the berm and will need to be removed along with the fill materials. However, the applicants propose to mitigate for the loss of each of the native trees at a ratio of at least 10:1. The Commission finds that native trees are an important coastal resource. Native trees prevent the erosion of hillsides and stream banks, moderate water temperatures in streams through shading, provide food and habitat, including nesting, roosting, and burrowing to a wide variety of wildlife. The individual native trees within the berm on the subject site provide habitat for wildlife and are an important part of the character and scenic quality of the area, although the berm area itself is highly disturbed and not

considered to be ESHA. Therefore, in order to implement the applicant's proposal to mitigate for the loss of the individual native trees that cannot be preserved in removal of the berm, **Special Condition No. Two (2)** requires the applicant to implement the proposed "Native Tree Preservation and Removal Plan" (Dagit, 2006).

The applicants propose the use of metal plates across Topanga Creek to serve as a temporary crossing for equipment to reach the west side of the creek from Topanga Canyon Boulevard. There is currently no vehicular crossing to that area of the site, as it is currently accessed by driving vehicles through the streambed. The metal plates are proposed to be placed across the creek in order to minimize erosion of the creek bed from the heavy equipment. The applicants estimate that the temporary crossing will be in place for a period of approximately 40 days. The crossing will only be placed in the dry season and will be removed prior to any storms. The Commission has consistently required road crossings of streams to be accomplished through bridging, where feasible. In this case, the proposed crossing will be located across an area previously disturbed by its use as a crossing for the existing residences. As such, no removal of riparian vegetation will be necessary. Additionally, the crossing will only be placed when the stream is absent or minimal during the dry season for a short temporary duration of time and will be removed. Construction of a bridge in this area to provide access for such a short period of time would have much greater impacts. As such, the impacts from the crossing will be minimized.

The Commission has determined that in conjunction with siting new development and incorporating BMPs and other mitigation measures to minimize impacts to ESHA, additional actions can be taken to minimize adverse impacts to ESHA. The Commission finds that the use of non-native and/or invasive plant species for landscaping or revegetation results in both direct and indirect adverse effects to native plants species indigenous to the Malibu/Santa Monica Mountains area. Adverse effects from such landscaping or revegetation result from the direct occupation or displacement of native plant communities by non-natives. Indirect adverse effects include offsite migration and colonization of native plant habitat by non-native/invasive plant species (which tend to outcompete native species) adjacent to development. In this case, the applicant proposes to remove exotic and invasive vegetation from the project site and plant natives that are indigenous to the Santa Monica Mountains. **Special Condition No. Two (2)** requires the applicant to implement the proposed Restoration and Revegetation Plan to plant/hydroseed all soils disturbed by the proposed project with natives. This condition is necessary to ensure that these areas are revegetated to minimize erosion and sedimentation to Topanga Creek.

The proposed project is necessary in order to restore the floodplain and channel of Topanga Creek to a more natural configuration and function. The alteration of streambeds (as proposed by this project) is consistent with Section 30236 of the Coastal Act when required for developments where the primary function is the improvement of fish and wildlife habitat and best mitigation measures feasible are utilized. In this case, the proposed restoration project may result in some potential adverse effects to surrounding habitat due to unintentional disturbance from

construction equipment and grading activities. However, the proposed project involves removal of an unpermitted berm that has adversely impacted the function and habitat value of this reach of Topanga Creek. Its removal and subsequent restoration of the riparian corridor, floodplain, and upland habitats will ultimately enhance habitat for fish and wildlife in this area. In addition, the proposed project has been designed to avoid and minimize potential adverse impacts to the maximum extent feasible.

The applicants also propose to remove exotic and invasive vegetation from the project site, and to apply herbicide to the stems of cut *Arundo donax* in order to prevent regrowth. In previous permit actions, the Commission has allowed for the use of Glyphosate Aquamaster™ when it was found that use of an herbicide was necessary for habitat restoration and that there were no feasible alternatives that would result in fewer adverse effects to the habitat value of the site. However, the Commission notes that Glyphosate herbicide, although determined by the EPA to be low in toxicity, is still toxic and could result in some adverse effects to wildlife or non-targeted vegetation should overspray or downstream migration occur. In order to minimize the potential for introduction of herbicide into the aquatic environment or onto adjacent non-targeted vegetation, **Special Condition No. Four (4)** restricts the use of herbicides to the use of Glyphosate Aquamaster™ (previously Rodeo™) herbicide for the elimination of invasive vegetation located within the project site for purposes of habitat restoration only. No use of any herbicide shall occur during the rainy season (November 1 – March 31) unless otherwise allowed by the Executive Director for good cause. In no instance shall herbicide application occur if wind speeds on site are greater than 5 mph or 48 hours prior to predicted rain. In the event that rain does occur, herbicide application shall not resume again until 72 hours after rain.

Lastly, the project requires review and approval by the U.S. Army Corps of Engineers. Under agreements between the Coastal Commission and the U.S. Army Corps of Engineers, the Corps will not issue a permit until the Coastal Commission approves a federal consistency certification for the project or approves a permit. To ensure that the project ultimately approved by the Corps is the same as the project authorized herein, the Executive Director attaches **Special Condition No. Five (5)**, which requires the applicant to submit to the Executive Director evidence of approval of the project by the U.S. Army Corps of Engineers within 60 days of the issuance of this coastal development permit. The condition requires that any project changes resulting from the Corps approval not be incorporated into the project until the applicant obtains any necessary amendments to this coastal development permit.

For the reasons set forth above, the Commission finds that the proposed project, as conditioned, will minimize impacts to ESHA, marine resources, and water quality, consistent with Sections 30230, 30231, 30236, and 30240 of the Coastal Act.

C. ARCHAEOLOGICAL RESOURCES

Coastal Act Section 30244 of the Coastal Act states that:

Where development would adversely impact archaeological or paleontological resources as identified by the State Historic Preservation Officer, reasonable mitigation measures shall be required.

Archaeological resources are significant to an understanding of cultural, environmental, biological, and geological history. The proposed development is located in a region of the Santa Monica Mountains which contains one of the most significant concentrations of archaeological sites in southern California. The Coastal Act requires the protection of such resources to reduce the potential adverse impacts through the use of reasonable mitigation measures.

Degradation of archaeological resources can occur if a project is not properly monitored and managed during earth moving activities and construction. Site preparation can disturb and/or obliterate archaeological materials to such an extent that the information that could have been derived would be permanently lost. In the past, numerous archaeological sites have been destroyed or damaged as a result of development. As a result, the remaining sites, even though often less rich in materials, have become increasingly valuable as a resource. Further, because archaeological sites, if studied collectively, may provide information on subsistence and settlement patterns, the loss of individual sites can reduce the scientific value of the sites which remain intact.

In this case, according to the "Topanga State Park Archaeological Test Trenching Report for the Rodeo Grounds Berm Removal Project" (DPR, 10/2005) no archaeological sites or features are known or recorded within the project area. However, one recorded site, CA-LAN-133, is located off-site at the mouth of Topanga Creek. In addition, a sacred site designation has been recorded within the Lower Topanga Creek area by the California Native American Heritage Commission.

With regard to the potential impacts of the proposed project on cultural resources in the area, the proposed excavation and grading work will take place within the artificial fill material of the berm and in areas that have obviously been disturbed over the years by the associated human use of the area. The proposed project involves restoring the historic creek bed and floodplain along Topanga Creek by removing a berm that was installed in the 1960's and 1980's. Surface and subsurface archaeological monitoring conducted on the project site in 2005 in consultation with Tongva-Gabrielino cultural monitors indicated an absence of cultural deposits. While it is not anticipated that proposed work would uncover or dislodge any cultural resources that may potentially be present, the potential exists for the proposed project to impact cultural resources. As such, the Commission finds that potential adverse effects may occur to those resources as a result of the proposed development and that, therefore, reasonable mitigation measures should be required pursuant to Section 30244 of the Coastal Act.

In past permit actions regarding development on sites containing potential cultural resources the Commission has required that a qualified archaeologist and appropriate Native American consultant be present on-site during all grading, excavation, and site preparation that involve earth moving operations in order to ensure that adverse effects to archaeological resources are minimized during operations that involve earth moving

or subsurface activities. **Special Condition No. Seven (7)** requires the applicant to have a qualified archaeologist(s) and appropriate Native American consultant(s) present on-site during all grading, excavation or other subsurface work in order to monitor these activities. In addition, if any significant archaeological resources are discovered during construction, work shall be stopped and an appropriate data recovery strategy shall be developed by the applicant's archaeologist, and the Native American consultant consistent with California Environmental Quality Act (CEQA) guidelines.

The Commission finds that the proposed development, as conditioned, will minimize impacts to cultural resources and includes appropriate mitigation measures, consistent with Section 30244 of the Coastal Act.

D. LOCAL COASTAL PROGRAM

Section 30604 of the Coastal Act states:

> ***a) Prior to certification of the local coastal program, a coastal development permit shall be issued if the issuing agency, or the commission on appeal, finds that the proposed development is in conformity with the provisions of Chapter 3 (commencing with Section 30200) of this division and that the permitted development will not prejudice the ability of the local government to prepare a local program that is in conformity with the provisions of Chapter 3 (commencing with Section 30200).***

Section 30604(a) of the Coastal Act provides that the Commission shall issue a Coastal Development Permit only if the project will not prejudice the ability of the local government having jurisdiction to prepare a Local Coastal Program which conforms with Chapter 3 policies of the Coastal Act. The preceding sections provide findings that the proposed project will be in conformity with the provisions of Chapter 3 if certain conditions are incorporated into the project and are accepted by the applicant. As conditioned, the proposed development will not create adverse impacts and is found to be consistent with the applicable policies contained in Chapter 3. Therefore, the Commission finds that approval of the proposed development, as conditioned, will not prejudice the County of Los Angeles' ability to prepare a Local Coastal Program for this area which is also consistent with the policies of Chapter 3 of the Coastal Act, as required by Section 30604(a).

E. CALIFORNIA ENVIRONMENTAL QUALITY ACT

Section 13096(a) of the Commission's administrative regulations requires Commission approval of a Coastal Development Permit application to be supported by a finding showing the application, as conditioned by any conditions of approval, to be consistent with any applicable requirements of the California Environmental Quality Act (CEQA). Section 21080.5(d)(2)(A) of CEQA prohibits a proposed development from being

approved if there are feasible alternatives or feasible mitigation measures available which would substantially lessen any significant adverse effect that the activity may have on the environment.

The Commission incorporates its findings on Coastal Act consistency at this point as if set forth in full. These findings address and respond to all public comments regarding potential significant adverse environmental effects of the project that were received prior to preparation of the staff report. As discussed above, the proposed development, as conditioned, is consistent with the policies of the Coastal Act. Feasible mitigation measures which will minimize all adverse environmental effects have been required as special conditions. As conditioned, there are no feasible alternatives or feasible mitigation measures available, beyond those required, which would substantially lessen any significant adverse impact that the activity may have on the environment. Therefore, the Commission finds that the proposed project, as conditioned to mitigate the identified impacts, can be found to be consistent with the requirements of the Coastal Act to conform to CEQA.

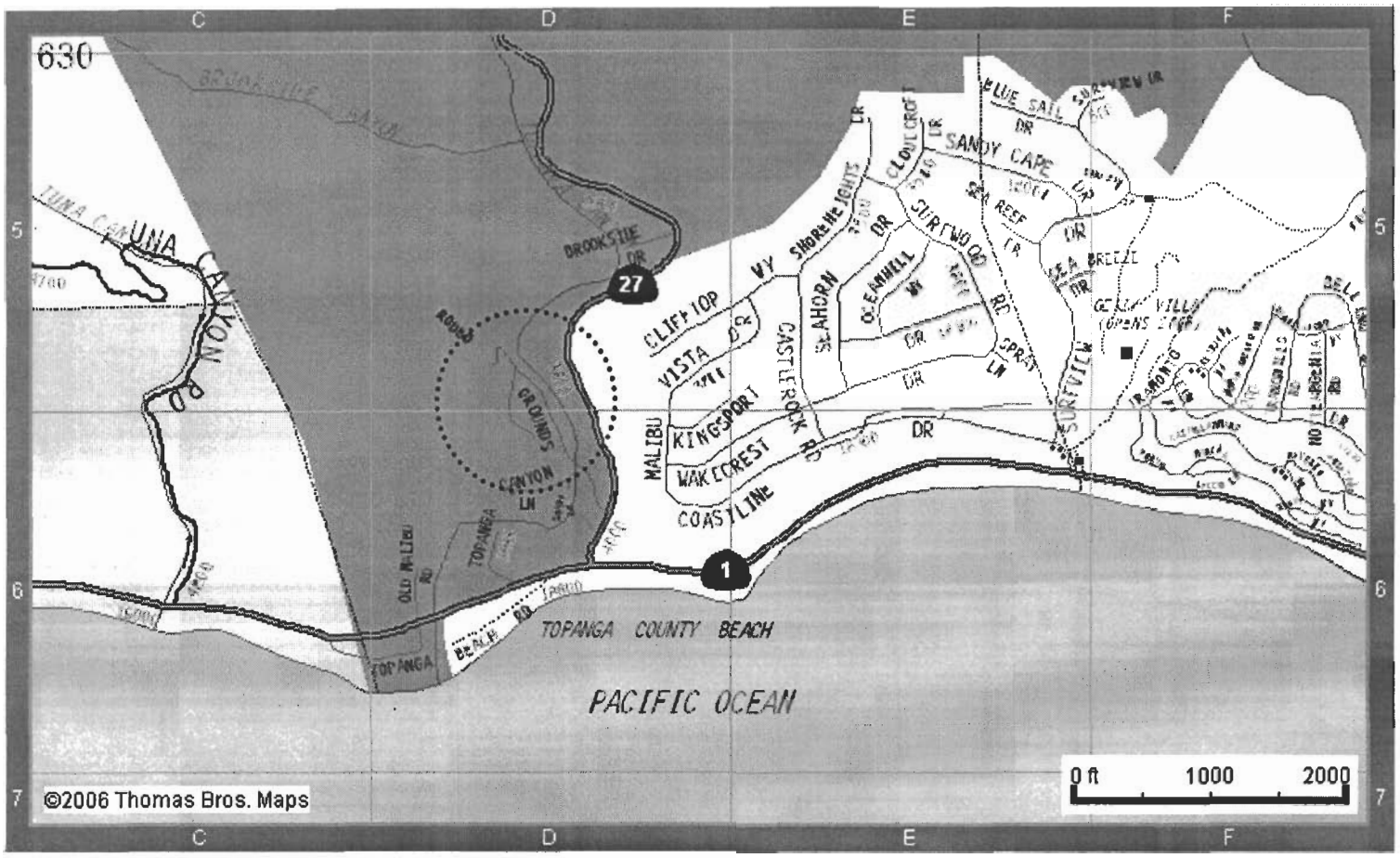


Exhibit 1
4-07-002
Project Vicinity

Source: California Department of Parks and Recreation

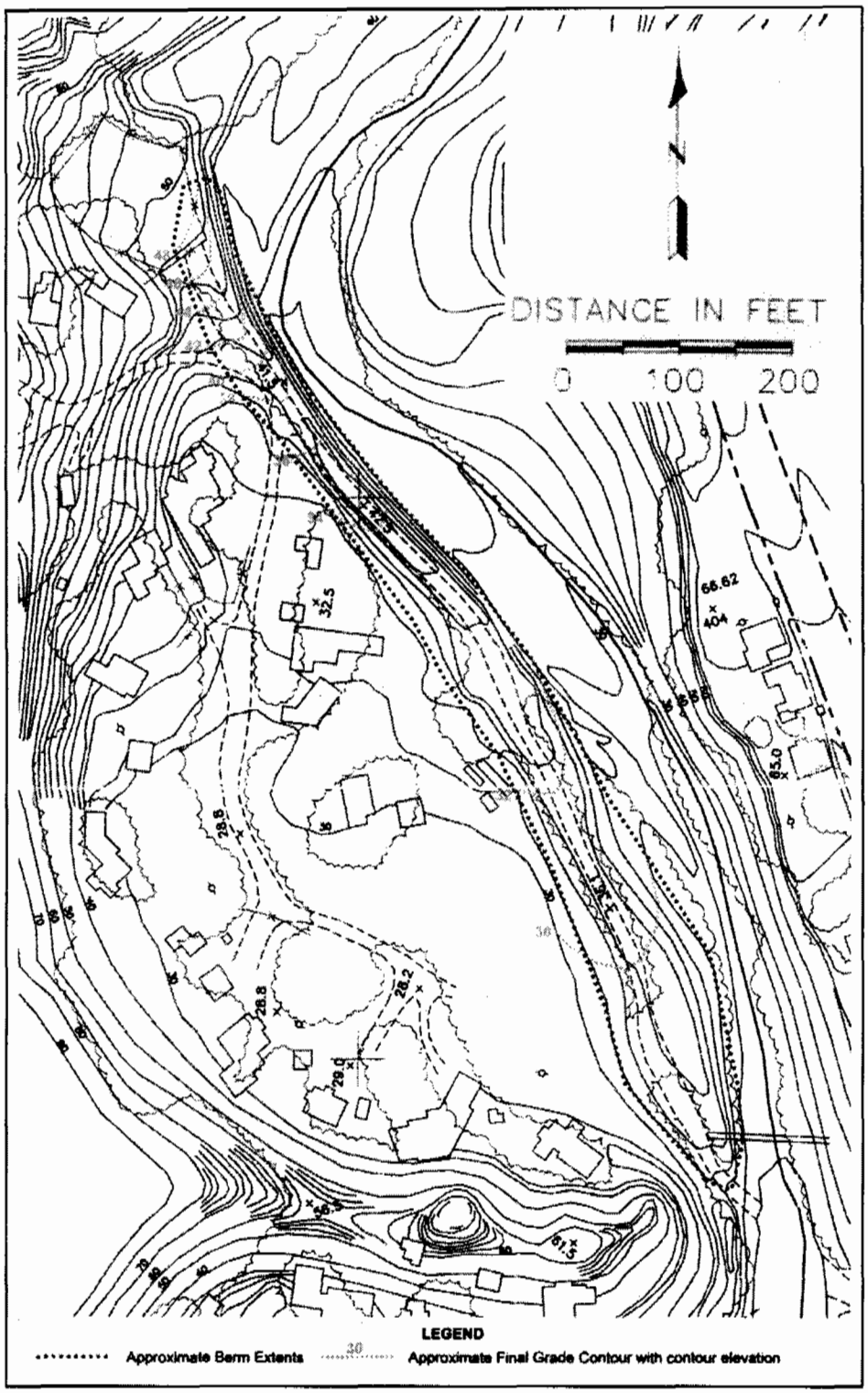
ODEO GROUNDS BERM REMOVAL AND RESTORATION PROJECT

ENVICOM CORPORATION

Topanga State Park Acquisition Area

FIGURE 3

Exhibit 2
4-07-002
Topanga SP
Acquisition Area



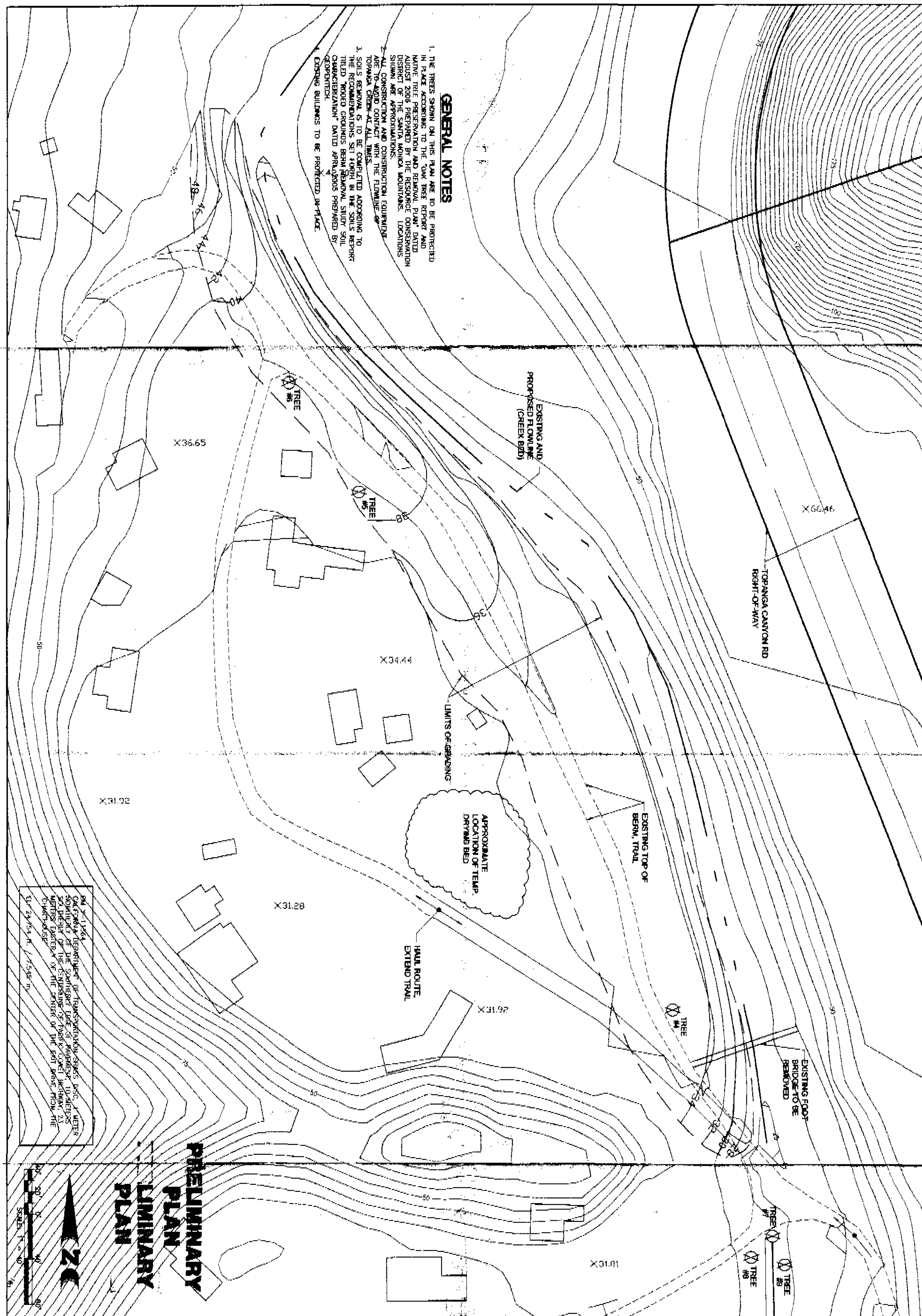
Source: GeoPentech, April 2005

RODEO GROUNDS BERM REMOVAL AND RESTORATION PROJECT

Approximate Final Grade Map

FEET 0 75

Exhibit 3
4-07-002
Site Plan


GENERAL NOTES
1. THE TREES SHOWN ON THIS PLAN ARE TO BE PROTECTED IN PLACE ACCORDING TO THE "OAK TREE REPORT AND NATIVE TREE PRESERVATION AND REMOVAL PLAN" DATED AUGUST 2006 PREPARED BY THE RESOURCE CONSERVATION DISTRICT OF THE SANTA MONICA MOUNTAINS. LOCATIONS SHOWN ARE APPROXIMATIONS.
2. ALL CONSTRUCTION AND CONSTRUCTION EQUIPMENT ARE TO AVOID CONTACT WITH THE FLOWLINE OF TOPANGA CREEK AT ALL TIMES.
3. SOILS REMOVAL IS TO BE COMPLETED ACCORDING TO THE RECOMMENDATIONS SET FORTH IN THE SOILS REPORT TITLED "RODEO GROUNDS BERM REMOVAL STUDY SOIL CHARACTERIZATION" DATED APRIL 2005 PREPARED BY GEOPENTECH.
4. EXISTING BUILDINGS TO BE PROTECTED IN PLACE
EXISTING AND PROPOSED FLOWLINE (CREEK BED)
TOPANGA CANYON RD RIGHT-OF-WAY
LIMITS OF GRADING
APPROXIMATE LOCATION OF TEMP. DRYING BED
EXISTING TOP OF BERM, TRAIL
HAUL ROUTE, EXTEND TRAIL
EXISTING FOOT BRIDGE TO BE REMOVED
TREE #4
TREE #5
TREE #6
TREE #7
TREE #8
TREE #9
X36.65
X34.44
X31.92
X31.28
X31.97
X31.81
X66.46
PRELIMINARY PLAN

GRADING PLAN

RODEO GROUNDS BERM REMOVAL PROJECT

LOWER TOPANGA CREEK

MALIBU, CA

REVISIONS	DATE

DESIGNED:	PMB
DRAWN:	OH
CHECKED:	JDF
DATE:	######

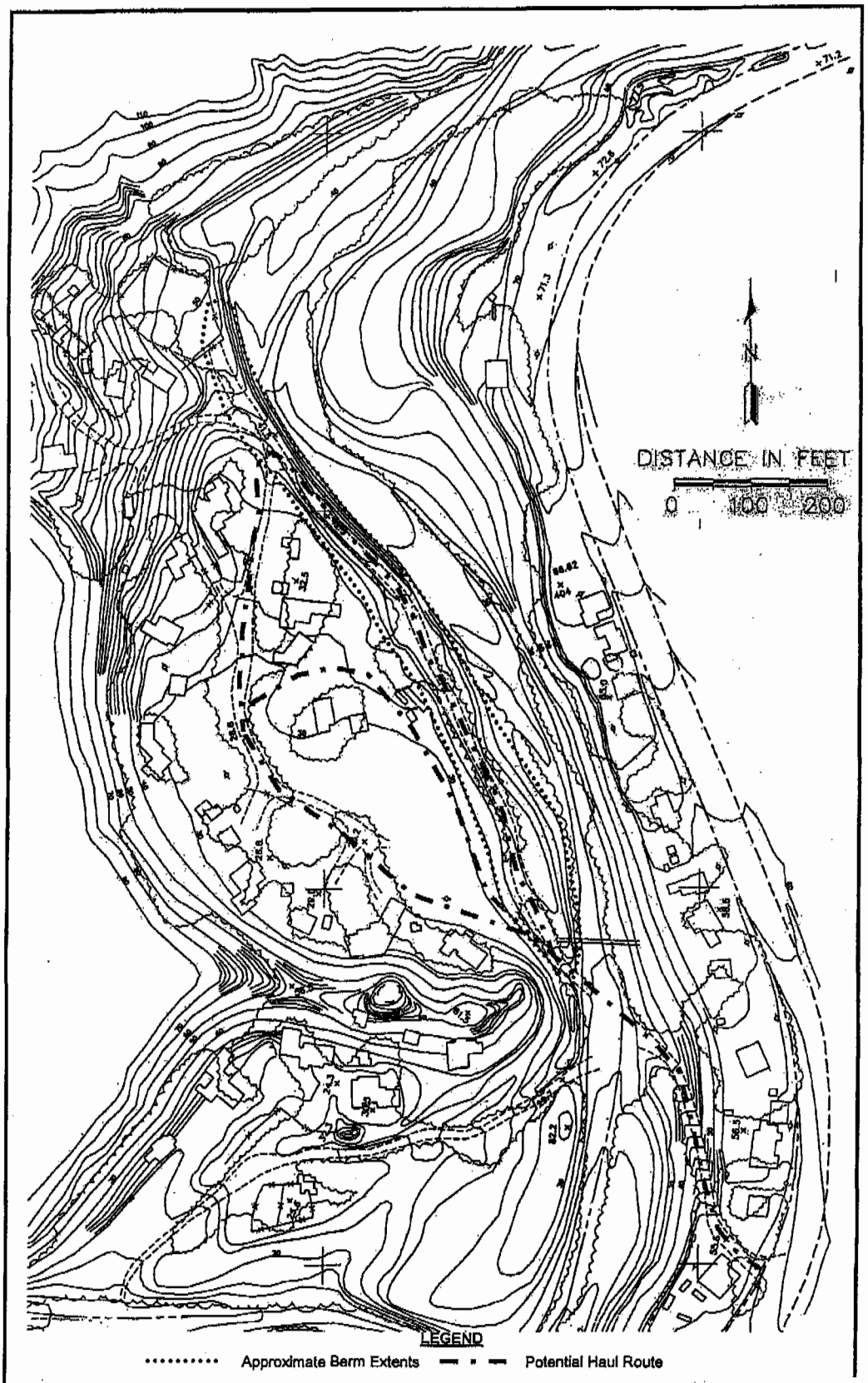
DRAWING NO. ########

SHEET NO. 1 OF 1

8885 Rio San Diego Dr. # 270
San Diego, CA 92108

Exhibit 4
4-07-002
Grading Plan

File: R:\19003901\Civil\003901\dwg\003901-SITE_PLAN.dwg Layout: 22x34 Date: June 26 2007 - 3:57 pm User: pbernard



GeoPentech	POTENTIAL HAUL ROUTES	PROJECT: RODEO GROUNDS BERM STUDY	
		PROJECT #: 05015A	DATE: APR. 2005

Exhibit 5
4-07-002
Haul Route Plan

Figure 2. Rodeo Grounds Berm Replanting Plan

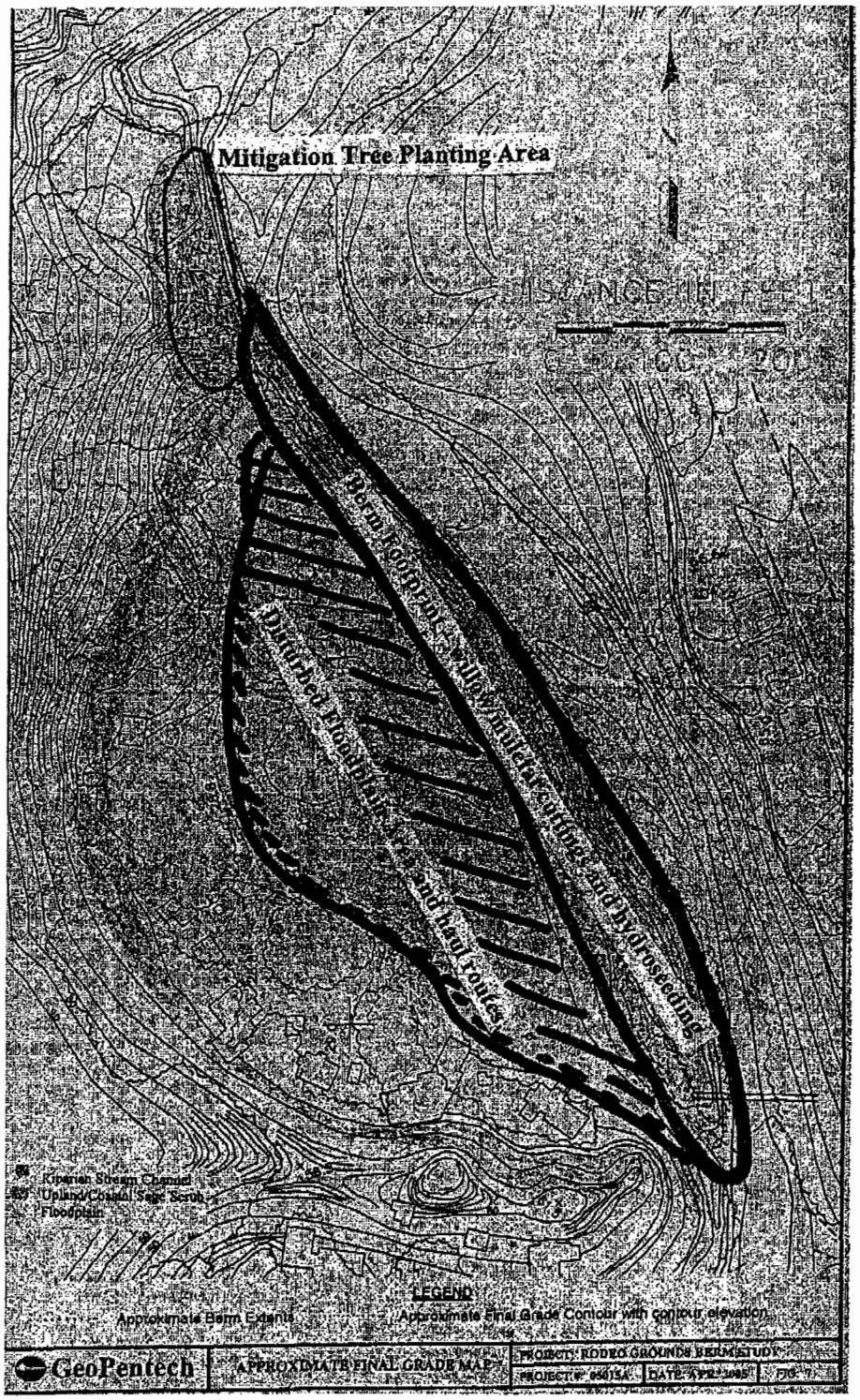


Exhibit 6
4-07-002
Planting Plan

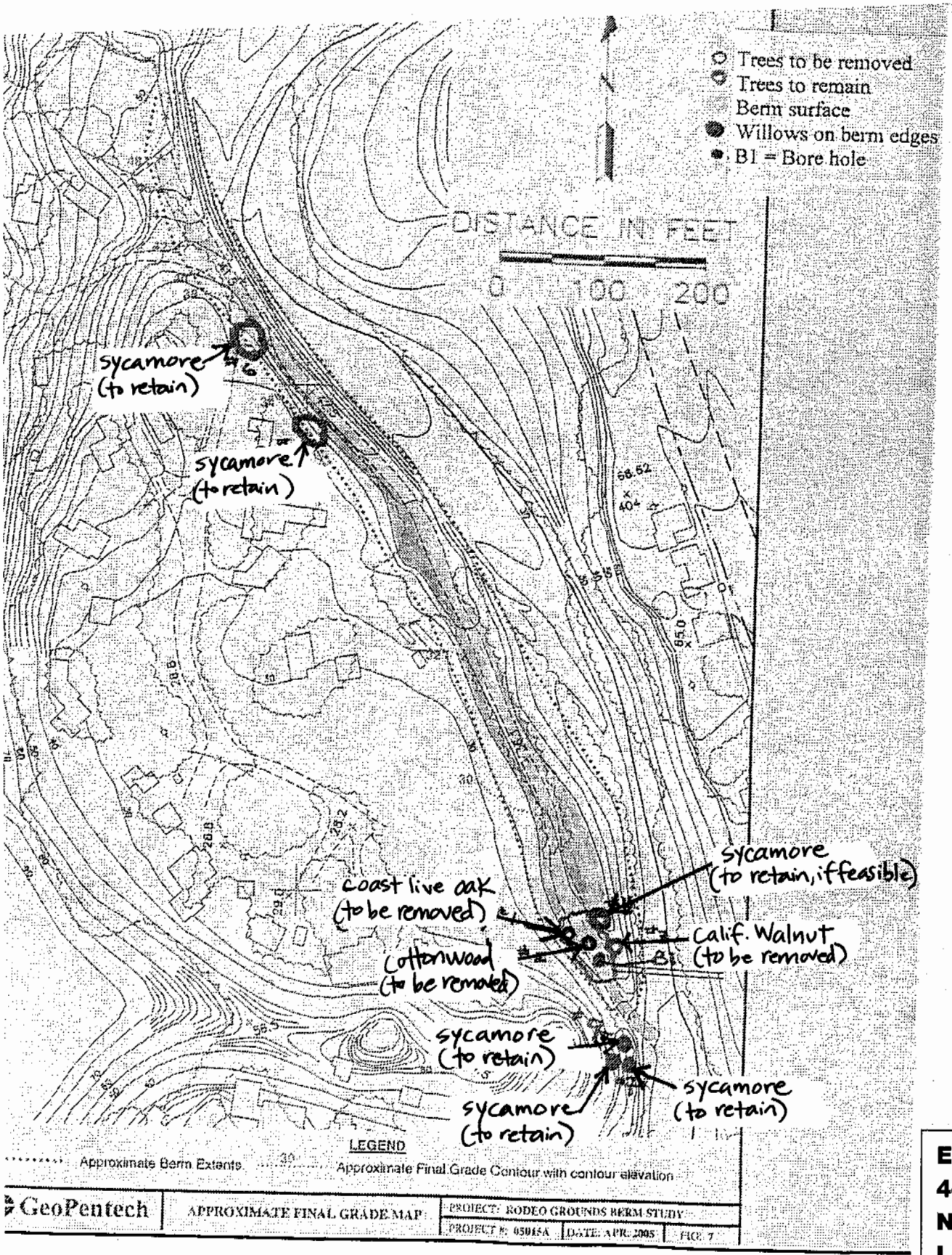


Exhibit 7
4-07-002
Native Tree
Location Map

STATE OF CALIFORNIA – THE RESOURCES AGENCY GRAY DAVIS, GOVERNOR

CALIFORNIA COASTAL COMMISSION
45 FREMONT, SUITE 2000
SAN FRANCISCO, CA 94105-2219
VOICE AND TDD (415) 904-5200
FAX (415) 904-5400

MEMORANDUM

FROM: John Dixon, Ph.D.
Ecologist / Wetland Coordinator

TO: Ventura Staff

SUBJECT: Designation of ESHA in the Santa Monica Mountains

DATE: March 25, 2003

In the context of the Malibu LCP, the Commission found that the Mediterranean Ecosystem in the Santa Mountains is rare, and especially valuable because of its relatively pristine character, physical complexity, and resultant biological diversity. Therefore, areas of undeveloped native habitat in the Santa Monica Mountains that are large and relatively unfragmented may meet the definition of ESHA by virtue of their valuable roles in that ecosystem, regardless of their relative rarity throughout the state. This is the only place in the coastal zone where the Commission has recognized chaparral as meeting the definition of ESHA. The scientific background presented herein for ESHA analysis in the Santa Monica Mountains is adapted from the Revised Findings for the Malibu LCP that the Commission adopted on February 6, 2003.

For habitats in the Santa Monica Mountains, particularly coastal sage scrub and chaparral, there are three site-specific tests to determine whether an area is ESHA because of its especially valuable role in the ecosystem. First, is the habitat properly identified, for example as coastal sage scrub or chaparral? The requisite information for this test generally should be provided by a site-specific biological assessment. Second, is the habitat largely undeveloped and otherwise relatively pristine? Third, is the habitat part of a large, contiguous block of relatively pristine native vegetation? This should be documented with an aerial photograph from our mapping unit (with the site delineated) and should be attached as an exhibit to the staff report. For those habitats that are absolutely rare or that support individual rare species, it is not necessary to find that they are relatively pristine, and are neither isolated nor fragmented.

Designation of Environmentally Sensitive Habitat in the Santa Monica Mountains

The Coastal Act provides a definition of "environmentally sensitive area" as: "Any area in which plant or animal life or their habitats are either rare or especially valuable because of their special nature or role in an ecosystem and which could be easily disturbed or degraded by human activities and developments" (Section 30107.5).

Exhibit 8
4-07-002
ESHA Memo

There are three important elements to the definition of ESHA. First, a geographic area can be designated ESHA either because of the presence of individual species of plants or animals or because of the presence of a particular habitat. Second, in order for an area to be designated as ESHA, the species or habitat must be either rare or it must be especially valuable. Finally, the area must be easily disturbed or degraded by human activities.

The first test of ESHA is whether a habitat or species is rare. Rarity can take several forms, each of which is important. Within the Santa Monica Mountains, rare species and habitats often fall within one of two common categories. Many rare species or habitats are globally rare, but locally abundant. They have suffered severe historical declines in overall abundance and currently are reduced to a small fraction of their original range, but where present may occur in relatively large numbers or cover large local areas. This is probably the most common form of rarity for both species and habitats in California and is characteristic of coastal sage scrub, for example. Some other habitats are geographically widespread, but occur everywhere in low abundance. California's native perennial grasslands fall within this category.

A second test for ESHA is whether a habitat or species is especially valuable. Areas may be valuable because of their "special nature," such as being an unusually pristine example of a habitat type, containing an unusual mix of species, supporting species at the edge of their range, or containing species with extreme variation. For example, reproducing populations of valley oaks are not only increasingly rare, but their southernmost occurrence is in the Santa Monica Mountains. Generally, however, habitats or species are considered valuable because of their special "role in the ecosystem." For example, many areas within the Santa Monica Mountains may meet this test because they provide habitat for endangered species, protect water quality, provide essential corridors linking one sensitive habitat to another, or provide critical ecological linkages such as the provision of pollinators or crucial trophic connections. Of course, all species play a role in their ecosystem that is arguably "special." However, the Coastal Act requires that this role be "especially valuable." This test is met for relatively pristine areas that are integral parts of the Santa Monica Mountains Mediterranean ecosystem because of the demonstrably rare and extraordinarily special nature of that ecosystem as detailed below.

Finally, ESHAs are those areas that could be easily disturbed or degraded by human activities and developments. Within the Santa Monica Mountains, as in most areas of southern California affected by urbanization, all natural habitats are in grave danger of direct loss or significant degradation as a result of many factors related to anthropogenic changes.

Ecosystem Context of the Habitats of the Santa Monica Mountains

The Santa Monica Mountains comprise the largest, most pristine, and ecologically complex example of a Mediterranean ecosystem in coastal southern California.

California's coastal sage scrub, chaparral, oak woodlands, and associated riparian areas have analogues in just a few areas of the world with similar climate. Mediterranean ecosystems with their wet winters and warm dry summers are only found in five localities (the Mediterranean coast, California, Chile, South Africa, and south and southwest Australia). Throughout the world, this ecosystem with its specially adapted vegetation and wildlife has suffered severe loss and degradation from human development. Worldwide, only 18 percent of the Mediterranean community type remains undisturbed[1]. However, within the Santa Monica Mountains, this ecosystem is remarkably intact despite the fact that it is closely surrounded by some 17 million people. For example, the 150,000 acres of the Santa Monica Mountains National Recreation Area, which encompasses most of the Santa Monica Mountains, was estimated to be 90 percent free of development in 2000[2]. Therefore, this relatively pristine area is both large and mostly unfragmented, which fulfills a fundamental tenet of conservation biology[3]. The need for large contiguous areas of natural habitat in order to maintain critical ecological processes has been emphasized by many conservation biologists[4].

In addition to being a large single expanse of land, the Santa Monica Mountains ecosystem is still connected, albeit somewhat tenuously, to adjacent, more inland ecosystems[5]. Connectivity among habitats within an ecosystem and connectivity among ecosystems is very important for the preservation of species and ecosystem integrity. In a recent statewide report, the California Resources Agency[6] identified wildlife corridors and habitat connectivity as the top conservation priority. In a letter to governor Gray Davis, sixty leading environmental scientists have endorsed the

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[1] National Park Service. 2000. Draft general management plan & environmental impact statement. Santa Monica Mountains National Recreation Area – California.

[2] Ibid.

[3] Harris, L. D. 1988. Edge effects and conservation of biotic diversity. Conserv. Biol. 330-332. Soule, M. E, D. T. Bolger, A. C. Alberts, J. Wright, M. Sorice and S. Hill. 1988. Reconstructed dynamics of rapid extinctions of chaparral-requiring birds in urban habitat islands. Conserv. Biol. 2: 75-92. Yahner, R. H. 1988. Changes in wildlife communities near edges. Conserv. Biol. 2:333-339. Murphy, D. D. 1989. Conservation and confusion: Wrong species, wrong scale, wrong conclusions. Conservation Biol. 3:82-84.

[4] Crooks, K. 2000. Mammalian carnivores as target species for conservation in Southern California. p. 105-112 *in*: Keeley, J. E., M. Baer-Keeley and C. J. Fotheringham (eds), 2nd Interface Between Ecology and Land Development in California, U.S. Geological Survey Open-File Report 00-62. Sauvajot, R. M., E. C. York, T. K. Fuller, H. Sharon Kim, D. A. Kamradt and R. K. Wayne. 2000. Distribution and status of carnivores in the Santa Monica Mountains, California: Preliminary results from radio telemetry and remote camera surveys. p 113-123 *in*: Keeley, J. E., M. Baer-Keeley and C. J. Fotheringham (eds), 2nd Interface Between Ecology and Land Development in California, U.S. Geological Survey Open-File Report 00-62. Beier, P. and R. F. Noss. 1998. Do habitat corridors provide connectivity? Conserv. Biol. 12:1241-1252. Beier, P. 1996. Metapopulation models, tenacious tracking and cougar conservation. *In*: Metapopulations and Wildlife Conservation, ed. D. R. McCullough. Island Press, Covelo, California, 429p.

[5] The SMM area is linked to larger natural inland areas to the north through two narrow corridors: 1) the Conejo Grade connection at the west end of the Mountains and 2) the Simi Hills connection in the central region of the SMM (from Malibu Creek State Park to the Santa Susanna Mountains).

[6] California Resources Agency. 2001. Missing Linkages: Restoring Connectivity to the California Landscape. California Wilderness Coalition, Calif. Dept of Parks & Recreation, USGS, San Diego Zoo and The Nature Conservancy. Available at: http://www.calwild.org/pubs/reports/linkages/index.htm

conclusions of that report[7]. The chief of natural resources at the California Department of Parks and Recreation has identified the Santa Monica Mountains as an area where maintaining connectivity is particularly important[8].

The species most directly affected by large scale connectivity are those that require large areas or a variety of habitats, e.g., gray fox, cougar, bobcat, badger, steelhead trout, and mule deer[9]. Large terrestrial predators are particularly good indicators of habitat connectivity and of the general health of the ecosystem[10]. Recent studies show that the mountain lion, or cougar, is the most sensitive indicator species of habitat fragmentation, followed by the spotted skunk and the bobcat[11]. Sightings of cougars in both inland and coastal areas of the Santa Monica Mountains[12] demonstrate their continued presence. Like the "canary in the mineshaft," an indicator species like this is good evidence that habitat connectivity and large scale ecological function remains in the Santa Monica Mountains ecosystem.

The habitat integrity and connectivity that is still evident within the Santa Monica Mountains is extremely important to maintain, because both theory and experiments over 75 years in ecology confirm that large spatially connected habitats tend to be more stable and have less frequent extinctions than habitats without extended spatial structure[13]. Beyond simply destabilizing the ecosystem, fragmentation and disturbance

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[7] Letters received and included in the September 2002 staff report for the Malibu LCP.

[8] Schoch, D. 2001. Survey lists 300 pathways as vital to state wildlife. Los Angeles Times. August 7, 2001.

[9] Martin, G. 2001. Linking habitat areas called vital for survival of state's wildlife Scientists map main migration corridors. San Francisco Chronicle, August 7, 2001.

[10] Noss, R. F., H. B. Quigley, M. G. Hornocker, T. Merrill and P. C. Paquet. 1996. Conservation biology and carnivore conservation in the Rocky Mountains. Conerv. Biol. 10: 949-963. Noss, R. F. 1995. Maintaining ecological integrity in representative reserve networks. World Wildlife Fund Canada.

[11] Sauvajot, R. M., E. C. York, T. K. Fuller, H. Sharon Kim, D. A. Kamradt and R. K. Wayne. 2000. Distribution and status of carnivores in the Santa Monica Mountains, California: Preliminary results from radio telemetry and remote camera surveys. p 113-123 in: Keeley, J. E., M. Baer-Keeley and C. J. Fotheringham (eds), 2nd Interface Between Ecology and Land Development in California, U.S. Geological Survey Open-File Report 00-62. Beier, P. 1996. Metapopulation models, tenacious tracking and cougar conservation. In: Metapopulations and Wildlife Conservation, ed. D. R. McCullough. Island Press, Covelo, California, 429p.

[12] Recent sightings of mountain lions include: Temescal Canyon (pers. com., Peter Brown, Facilities Manager, Calvary Church), Topanga Canyon (pers. com., Marti Witter, NPS), Encinal and Trancas Canyons (pers. com., Pat Healy), Stump Ranch Research Center (pers. com., Dr. Robert Wayne, Dept. of Biology, UCLA). In May of 2002, the NPS *photographed* a mountain lion at a trip camera on the Back Bone Trail near Castro Crest – Seth Riley, Eric York and Dr. Ray Sauvajot, National Park Service, SMMNRA.

[13] Gause, G. F. 1934. The struggle for existence. Balitmore, William and Wilkins 163 p. (also reprinted by Hafner, N.Y. 1964). Gause, G. F., N. P. Smaragdova and A. A. Witt. 1936. Further studies of interaction between predators and their prey. J. Anim. Ecol. 5:1-18. Huffaker, C. B. 1958. Experimental studies on predation: dispersion factors and predator-prey oscillations. Hilgardia 27:343-383. Luckinbill, L. S. 1973. Coexistence in laboratory populations of *Paramecium aurelia* and its predator *Didinium nasutum*. Ecology 54:1320-1327. Allen, J. C., C. C. Brewster and D. H. Slone. 2001. Spatially explicit ecological models: A spatial convolution approach. Chaos, Solitons and Fractals. 12:333-347.

can even cause unexpected and irreversible changes to new and completely different kinds of ecosystems (habitat conversion)[14].

As a result of the pristine nature of large areas of the Santa Monica Mountains and the existence of large, unfragmented and interconnected blocks of habitat, this ecosystem continues to support an extremely diverse flora and fauna. The observed diversity is probably a function of the diversity of physical habitats. The Santa Monica Mountains have the greatest geological diversity of all major mountain ranges within the transverse range province. According to the National Park Service, the Santa Monica Mountains contain 40 separate watersheds and over 170 major streams with 49 coastal outlets[15]. These streams are somewhat unique along the California coast because of their topographic setting. As a "transverse" range, the Santa Monica Mountains are oriented in an east-west direction. As a result, the south-facing riparian habitats have more variable sun exposure than the east-west riparian corridors of other sections of the coast. This creates a more diverse moisture environment and contributes to the higher biodiversity of the region. The many different physical habitats of the Santa Monica Mountains support at least 17 native vegetation types[16] including the following habitats considered sensitive by the California Department of Fish and Game: native perennial grassland, coastal sage scrub, red-shank chaparral, valley oak woodland, walnut woodland, southern willow scrub, southern cottonwood-willow riparian forest, sycamore-alder woodland, oak riparian forest, coastal salt marsh, and freshwater marsh. Over 400 species of birds, 35 species of reptiles and amphibians, and more than 40 species of mammals have been documented in this diverse ecosystem. More than 80 sensitive species of plants and animals (listed, proposed for listing, or species of concern) are known to occur or have the potential to occur within the Santa Monica Mountains Mediterranean ecosystem.

The Santa Monica Mountains are also important in a larger regional context. Several recent studies have concluded that the area of southern California that includes the Santa Monica Mountains is among the most sensitive in the world in terms of the number of rare endemic species, endangered species and habitat loss. These studies have designated the area to be a local hot-spot of endangerment in need of special protection[17].

Therefore, the Commission finds that the Santa Monica Mountains ecosystem is itself rare and especially valuable because of its special nature as the largest, most pristine,

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[14] Scheffer, M., S. Carpenter, J. A. Foley, C. Folke and B. Walker. 2001. Catastrophic shifts in ecosystems. Nature 413:591-596.

[15] NPS. 2000. op.cit.

[16] From the NPS report (2000 op. cit.) that is based on the older Holland system of subjective classification. The data-driven system of Sawyer and Keeler-Wolf results in a much larger number of distinct "alliances" or vegetation types.

[17] Myers, N. 1990. The biodiversity challenge: Expanded hot-spots analysis. Environmentalist 10:243-256. Myers, N., R. A. Mittermeier, C. G. Mittermeier, G. A. B. da Fonseca and J. A. Kent. 2000. Biodiversity hot-spots for conservation priorities. Nature 403:853-858. Dobson, A. P., J. P. Rodriguez, W. M. Roberts and D. S. Wilcove. 1997. Geographic distribution of endangered species in the United States. Science 275:550-553.

physically complex, and biologically diverse example of a Mediterranean ecosystem in coastal southern California. The Commission further finds that because of the rare and special nature of the Santa Monica Mountains ecosystem, the ecosystem roles of substantially intact areas of the constituent plant communities discussed below are "especially valuable" under the Coastal Act.

Major Habitats within the Santa Monica Mountains

The most recent vegetation map that is available for the Santa Monica Mountains is the map that was produced for the National Park Service in the mid-1990s using 1993 satellite imagery supplemented with color and color infrared aerial imagery from 1984, 1988, and 1994 and field review[18]. The minimum mapping unit was 5 acres. For that map, the vegetation was mapped in very broad categories, generally following a vegetation classification scheme developed by Holland[19]. Because of the mapping methods used the degree of plant community complexity in the landscape is not represented. For example, the various types of "ceanothus chaparral" that have been documented were lumped under one vegetation type referred to as "northern mixed chaparral." Dr. Todd Keeler-Wolf of the California Department of Fish and Game is currently conducting a more detailed, quantitative vegetation survey of the Santa Monica Mountains.

The National Park Service map can be used to characterize broadly the types of plant communities present. The main generic plant communities present in the Santa Monica Mountains[20] are: coastal sage scrub, chaparral, riparian woodland, coast live oak woodland, and grasslands.

Riparian Woodland

Some 49 streams connect inland areas with the coast, and there are many smaller drainages as well, many of which are "blue line." Riparian woodlands occur along both perennial and intermittent streams in nutrient-rich soils. Partly because of its multi-layered vegetation, the riparian community contains the greatest overall biodiversity of all the plant communities in the area[21]. At least four types of riparian communities are discernable in the Santa Monica Mountains: walnut riparian areas, mulefat-dominated riparian areas, willow riparian areas and sycamore riparian woodlands. Of these, the

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[18] Franklin, J. 1997. Forest Service Southern California Mapping Project, Santa Monica Mountains National Recreation Area, Task 11 Description and Results, Final Report. June 13, 1997, Dept. of Geography, San Diego State University, USFS Contract No. 53-91S8-3-TM45.

[19] Holland R. F. 1986. Preliminary Descriptions of the Terrestrial Natural Communities of California. State of California, The Resources Agency, Dept. of Fish and Game, Natural Heritage Division, Sacramento, CA. 95814.

[20] National Park Service. 2000. Draft: General Management Plan & Environmental Impact Statement, Santa Monica Mountains National Recreation Area, US Dept. of Interior, National Park Service, December 2000. (Fig. 11 in this document.)

[21] Ibid.

sycamore riparian woodland is the most diverse riparian community in the area. In these habitats, the dominant plant species include arroyo willow, California black walnut, sycamore, coast live oak, Mexican elderberry, California bay laurel, and mule fat. Wildlife species that have been observed in this community include least Bell's vireo (a State and federally listed species), American goldfinches, black phoebes, warbling vireos, bank swallows (State listed threatened species), song sparrows, belted kingfishers, raccoons, and California and Pacific tree frogs.

Riparian communities are the most species-rich to be found in the Santa Monica Mountains. Because of their multi-layered vegetation, available water supply, vegetative cover and adjacency to shrubland habitats, they are attractive to many native wildlife species, and provide essential functions in their lifecycles[22]. During the long dry summers in this Mediterranean climate, these communities are an essential refuge and oasis for much of the areas' wildlife.

Riparian habitats and their associated streams form important connecting links in the Santa Monica Mountains. These habitats connect all of the biological communities from the highest elevation chaparral to the sea with a unidirectional flowing water system, one function of which is to carry nutrients through the ecosystem to the benefit of many different species along the way.

The streams themselves provide refuge for sensitive species including: the coast range newt, the Pacific pond turtle, and the steelhead trout. The coast range newt and the Pacific pond turtle are California Species of Special Concern and are proposed for federal listing[23], and the steelhead trout is federally endangered. The health of the streams is dependent on the ecological functions provided by the associated riparian woodlands. These functions include the provision of large woody debris for habitat, shading that controls water temperature, and input of leaves that provide the foundation of the stream-based trophic structure.

The importance of the connectivity between riparian areas and adjacent habitats is illustrated by the Pacific pond turtle and the coast range newt, both of which are sensitive and both of which require this connectivity for their survival. The life history of the Pacific pond turtle demonstrates the importance of riparian areas and their associated watersheds for this species. These turtles require the stream habitat during the wet season. However, recent radio tracking work[24] has found that although the Pacific pond turtle spends the wet season in streams, it also requires upland habitat for refuge during the dry season. Thus, in coastal southern California, the Pacific pond turtle requires both streams and intact adjacent upland habitats such as coastal sage

[22] Walter, Hartmut. Bird use of Mediterranean habitats in the Santa Monica Mountains, Coastal Commission Workshop on the Significance of Native Habitats in the Santa Monica Mountains. CCC Hearing, June 13, 2002, Queen Mary Hotel.

[23] USFWS. 1989. Endangered and threatened wildlife and plants; animal notice of review. Fed. Reg. 54:554-579. USFWS. 1993. Endangered and threatened wildlife and plants; notice of 1-year petition finding on the western pond turtle. Fed. Reg. 58:42717-42718.

[24] Rathbun, G.B., N.J. Scott and T.G. Murphy. 2002. Terrestrial habitat use by Pacific pond turtle in a Mediterranean climate. Southwestern Naturalist. (*in Press*).

scrub, woodlands or chaparral as part of their normal life cycle. The turtles spend about four months of the year in upland refuge sites located an average distance of 50 m (but up to 280 m) from the edge of the creek bed. Similarly, nesting sites where the females lay eggs are also located in upland habitats an average of 30 m (but up to 170 m) from the creek. Occasionally, these turtles move up to 2 miles across upland habitat[25]. Like many species, the pond turtle requires both stream habitats and the upland habitats of the watershed to complete its normal annual cycle of behavior. Similarly, the coast range newt has been observed to travel hundreds of meters into upland habitat and spend about ten months of the year far from the riparian streambed[26]. They return to the stream to breed in the wet season, and they are therefore another species that requires both riparian habitat and adjacent uplands for their survival.

Riparian habitats in California have suffered serious losses and such habitats in southern California are currently very rare and seriously threatened. In 1989, Faber estimated that 95-97% of riparian habitat in southern California was already lost[27]. Writing at the same time as Faber, Bowler asserted that, *"[t]here is no question that riparian habitat in southern California is endangered."*[28] In the intervening 13 years, there have been continuing losses of the small amount of riparian woodlands that remain. Today these habitats are, along with native grasslands and wetlands, among the most threatened in California.

In addition to direct habitat loss, streams and riparian areas have been degraded by the effects of development. For example, the coast range newt, a California Species of Special Concern has suffered a variety of impacts from human-related disturbances[29]. Human-caused increased fire frequency has resulted in increased sedimentation rates, which exacerbates the cannibalistic predation of adult newts on the larval stages.[30] In addition impacts from non-native species of crayfish and mosquito fish have also been documented. When these non-native predators are introduced, native prey organisms are exposed to new mortality pressures for which they are not adapted. Coast range newts that breed in the Santa Monica Mountain streams do not appear to have adaptations that permit co-occurrence with introduced mosquito fish and crayfish[31]. These introduced predators have eliminated the newts from streams where they previously occurred by both direct predation and suppression of breeding.

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[25] Testimony by R. Dagit, Resource Conservation District of the Santa Monica Mountains at the CCC Habitat Workshop on June 13, 2002.

[26] Dr, Lee Kats, Pepperdine University, personal communication to Dr J. Allen, CCC.

[27] Faber, P.A., E, Keller, A. Sands and B.M. Massey. 1989. The ecology of riparian habitats of the southern California coastal region: a community profile. U.S. Fish and Wildlife Service Biological Report 85(7.27) 152pp.

[28] Bowler, P.A. 1989. Riparian woodland: An endangered habitat in southern California. Pp 80-97 *in* Schoenherr, A.A. (ed.) Endangered plant communities of southern California. Botanists Special Publication No. 3.

[29] Gamradt, S.C., L.B. Kats and C.B. Anzalone. 1997. Aggression by non-native crayfish deters breeding in California newts. Conservation Biology 11(3):793-796.

[30] Kerby, L.J., and L.B. Kats. 1998. Modified interactions between salamander life stages caused by wildfire-induced sedimentation. Ecology 79(2):740-745.

[31] Gamradt, S.C. and L.B. Kats. 1996. Effect of introduced crayfish and mosquitofish on California newts. Conservation Biology 10(4):1155-1162.

Therefore, because of the essential role that riparian plant communities play in maintaining the biodiversity of the Santa Monica Mountains, because of the historical losses and current rarity of these habitats in southern California, and because of their extreme sensitivity to disturbance, the native riparian habitats in the Santa Monica Mountains meet the definition of ESHA under the Coastal Act.

Coastal Sage Scrub and Chaparral

Coastal sage scrub and chaparral are often lumped together as "shrublands" because of their roughly similar appearance and occurrence in similar and often adjacent physical habitats. In earlier literature, these vegetation associations were often called soft chaparral and hard chaparral, respectively. "Soft" and "hard" refers to differences in their foliage associated with different adaptations to summer drought. Coastal sage scrub is dominated by soft-leaved, generally low-growing aromatic shrubs that die back and drop their leaves in response to drought. Chaparral is dominated by taller, deeper-rooted evergreen shrubs with hard, waxy leaves that minimize water loss during drought.

The two vegetation types are often found interspersed with each other. Under some circumstances, coastal sage scrub may even be successional to chaparral, meaning that after disturbance, a site may first be covered by coastal sage scrub, which is then replaced with chaparral over long periods of time.[32] The existing mosaic of coastal sage scrub and chaparral is the result of a dynamic process that is a function of fire history, recent climatic conditions, soil differences, slope, aspect and moisture regime, and the two habitats should not be thought of as completely separate and unrelated entities but as different phases of the same process[33]. The spatial pattern of these vegetation stands at any given time thus depends on both local site conditions and on history (e.g., fire), and is influenced by both natural and human factors.

In lower elevation areas with high fire frequency, chaparral and coastal sage scrub may be in a state of flux, leading one researcher to describe the mix as a "coastal sage-chaparral subclimax."[34] Several other researchers have noted the replacement of chaparral by coastal sage scrub, or coastal sage scrub by chaparral depending on fire history.[35] In transitional and other settings, the mosaic of chaparral and coastal sage

[32] Cooper, W.S. 1922. The broad-sclerophyll vegetation of California. Carnegie Institution of Washington Publication 319. 124 pp.
[33] Longcore, T and C. Rich. 2002. Protection of environmentally sensitive habitat areas in proposed local coastal plan for the Santa Monica Mountains. The Urban Wildlands Group, Inc., P.O. Box 24020 Los Angeles, CA 90024. (See attached comment document in Appendix).
[34] Hanes, T.L. 1965. Ecological studies on two closely related chaparral shrubs in southern California. Ecological Monographs 41:27-52.
[35] Gray, K.L. 1983. Competition for light and dynamic boundary between chaparral and coastal sage scrub. Madrono 30(1):43-49. Zedler, P.H., C.R. Gautier and G.S. McMaster. 1983. Vegetation change in response to extreme events: The effect of a short interval between fires in California chaparral and coastal sage scrub. Ecology 64(4): 809-818.

scrub enriches the seasonal plant resource base and provides additional habitat variability and seasonality for the many species that inhabit the area.

Relationships Among Coastal Sage Scrub, Chaparral and Riparian Communities

Although the constituent communities of the Santa Monica Mountains Mediterranean ecosystem can be defined and distinguished based on species composition, growth habits, and the physical habitats they characteristically occupy, they are not independent entities ecologically. Many species of plants, such as black sage, and laurel sumac, occur in more than one plant community and many animals rely on the predictable mix of communities found in undisturbed Mediterranean ecosystems to sustain them through the seasons and during different portions of their life histories.

Strong evidence for the interconnectedness between chaparral, coastal scrub and other habitats is provided by "opportunistic foragers" (animals that follow the growth and flowering cycles across these habitats). Coastal scrub and chaparral flowering and growth cycles differ in a complimentary and sequential way that many animals have evolved to exploit. Whereas coastal sage scrub is shallow-rooted and responds quickly to seasonal rains, chaparral plants are typically deep-rooted having most of their flowering and growth later in the rainy season after the deeper soil layers have been saturated[36]. New growth of chaparral evergreen shrubs takes place about four months later than coastal sage scrub plants and it continues later into the summer[37]. For example, in coastal sage scrub, California sagebrush flowers and grows from August to February and coyote bush flowers from August to November[38]. In contrast, chamise chaparral and bigpod ceanothus flower from April to June, buck brush ceanothus flowers from February to April, and hoaryleaf ceanothus flowers from March to April.

Many groups of animals exploit these seasonal differences in growth and blooming period. The opportunistic foraging insect community (e.g., honeybees, butterflies and moths) tends to follow these cycles of flowering and new growth, moving from coastal sage scrub in the early rainy season to chaparral in the spring[39]. The insects in turn are followed by insectivorous birds such as the blue-gray gnatcatcher[40], bushtit, cactus wren, Bewick's wren and California towhee. At night bats take over the role of daytime insectivores. At least 12 species of bats (all of which are considered sensitive) occur in

[36] DeSimone, S. 2000. California's coastal sage scrub. Fremontia 23(4):3-8. Mooney, H.A. 1988. Southern coastal scrub. Chap. 13 *in* Barbour, M.G. and J. Majors; Eds. 1988. Terrestrial vegetation of California, 2nd Edition. Calif. Native Plant Soc. Spec. Publ. #9.
[37] Schoenherr, A. A. 1992. A natural history of California. University of California Press, Berkeley. 772p.
[38] Dale, N. 2000. Flowering plants of the Santa Monica Mountains. California Native Plant Society, 1722 J Street, Suite 17, Sacramento, CA 95814.
[39] Ballmer, G. R. 1995. What's bugging coastal sage scrub. Fremontia 23(4):17-26.
[40] Root, R. B. 1967. The niche exploitation pattern of the blue-gray gnatcatcher. Ecol. Monog.37:317-350.

the Santa Monica Mountains[41]. Five species of hummingbirds also follow the flowering cycle[42].

Many species of 'opportunistic foragers', which utilize several different community types, perform important ecological roles during their seasonal movements. The scrub jay is a good example of such a species. The scrub jay is an omnivore and forages in coastal sage scrub, chaparral, and oak woodlands for insects, berries and notably acorns. Its foraging behavior includes the habit of burying acorns, usually at sites away from the parent tree canopy. Buried acorns have a much better chance of successful germination (about two-fold) than exposed acorns because they are protected from desiccation and predators. One scrub jay will bury approximately 5000 acorns in a year. The scrub jay therefore performs the function of greatly increasing recruitment and regeneration of oak woodland, a valuable and sensitive habitat type[43].

Like the scrub jay, most of the species of birds that inhabit the Mediterranean ecosystem in the Santa Monica Mountains require more than one community type in order to flourish. Many species include several community types in their daily activities. Other species tend to move from one community to another seasonally. The importance of maintaining the integrity of the multi-community ecosystem is clear in the following observations of Dr. Hartmut Walter of the University of California at Los Angeles:

> "Bird diversity is directly related to the habitat mosaic and topographic diversity of the Santa Monicas. Most bird species in this bio-landscape require more than one habitat for survival and reproduction." "A significant proportion of the avifauna breeds in the wooded canyons of the Santa Monicas. Most of the canyon breeders forage every day in the brush- and grass-covered slopes, ridges and mesas. They would not breed in the canyons in the absence of the surrounding shrublands. Hawks, owls, falcons, orioles, flycatchers, woodpeckers, warblers, hummingbirds, etc. belong to this group. Conversely, some of the characteristic chaparral birds such as thrashers, quails, and wrentits need the canyons for access to shelter, protection from fire, and water. The regular and massive movement of birds between riparian corridors and adjacent shrublands has been demonstrated by qualitative and quantitative observations by several UCLA students[44]."

Thus, the Mediterranean ecosystem of the Santa Monica Mountains is a mosaic of vegetation types linked together ecologically. The high biodiversity of the area results

[41] Letter from Dr. Marti Witter, NPS, dated Sept. 13, 2001, in letters received and included in the September 2002 staff report for the Malibu LCP.
[42] National Park Service. 1993. A checklist of the birds of the Santa Monica Mountains National Recreation Area. Southwest Parks and Monuments Assoc., 221 N. Court, Tucson, AZ. 85701
[43] Borchert, M. I., F. W. Davis, J. Michaelsen and L. D. Oyler. 1989. Interactions of factors affecting seedling recruitment of blue oak (*Quercus douglasii*) in California. Ecology 70:389-404. Bossema, I. 1979. Jays and oaks: An eco-ethological study of a symbiosis. Behavior 70:1-118. Schoenherr, A. A. 1992. A natural history of California. University of California Press, Berkeley. 772p.
[44] Walter, Hartmut. Bird use of Mediterranean habitats in the Santa Monica Mountains, Coastal Commission Workshop on the Significance of Native Habitats in the Santa Monica Mountains. CCC Hearing, June 13, 2002, Queen Mary Hotel.

from both the diversity and the interconnected nature of this mosaic. Most raptor species, for example, require large areas and will often require different habitats for perching, nesting and foraging. Fourteen species of raptors (13 of which are considered sensitive) are reported from the Santa Monica Mountains. These species utilize a variety of habitats including rock outcrops, oak woodlands, riparian areas, grasslands, chaparral, coastal sage scrub, estuaries and freshwater lakes[45].

When the community mosaic is disrupted and fragmented by development, many chaparral-associated native bird species are impacted. In a study of landscape-level fragmentation in the Santa Monica Mountains, Stralberg[46] found that the ash-throated flycatcher, Bewick's wren, wrentit, blue-gray gnatcatcher, California thrasher, orange-crowned warbler, rufous-crowned sparrow, spotted towhee, and California towhee all decreased in numbers as a result of urbanization. Soule[47] observed similar effects of fragmentation on chaparral and coastal sage scrub birds in the San Diego area.

In summary, all of the vegetation types in this ecosystem are strongly linked by animal movement and foraging. Whereas classification and mapping of vegetation types may suggest a snapshot view of the system, the seasonal movements and foraging of animals across these habitats illustrates the dynamic nature and vital connections that are crucial to the survival of this ecosystem.

Coastal Sage Scrub

"Coastal sage scrub" is a generic vegetation type that is inclusive of several subtypes[48]. In the Santa Monica Mountains, coastal sage scrub is mostly of the type termed "Venturan Coastal Sage Scrub." In general, coastal sage scrub is comprised of dominant species that are semi-woody and low-growing, with shallow, dense roots that enable them to respond quickly to rainfall. Under the moist conditions of winter and spring, they grow quickly, flower, and produce light, wind-dispersed seeds, making them good colonizers following disturbance. These species cope with summer drought by dying back, dropping their leaves or producing a smaller summer leaf in order to reduce water loss. Stands of coastal sage scrub are much more open than chaparral and contain a greater admixture of herbaceous species. Coastal sage scrub is generally restricted to drier sites, such as low foothills, south-facing slopes, and shallow soils at higher elevations.

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[45] National Park Service. 1993. A checklist of the birds of the Santa Monica Mountains National Recreation Area. Southwest Parks and Monuments Assoc., 221 N. Court, Tucson, AZ. 85701. *and* Letter from Dr. Marti Witter, NPS, Dated Sept. 13, 2001, in letters received and included in the September 2002 staff report for the Malibu LCP.

[46] Stralberg, D. 2000. Landscape-level urbanization effects on chaparral birds: A Santa Monica Mountains case study. p 125-136 *in*: Keeley, J. E., M. Baer-Keeley and C. J. Fotheringham (eds), 2nd Interface Between Ecology and Land Development in California, U.S. Geological Survey Open-File Report 00-62.

[47] Soule, M. E, D. T. Bolger, A. C. Alberts, J. Wright, M. Sorice and S. Hill. 1988. Reconstructed dynamics of rapid extinctions of chaparral-requiring birds in urban habitat islands. Conserv. Biol. 2: 75-92.

[48] Kirkpatrick, J.B. and C.F. Hutchinson. 1977. The community composition of Californian coastal sage scrub. Vegetatio 35:21-33; Holland, 1986. op.cit.; Sawyer and Keeler-Wolf, 1995, op.cit.

The species composition and structure of individual stands of coastal sage scrub depend on moisture conditions that derive from slope, aspect, elevation and soil type. Drier sites are dominated by more drought-resistant species (e.g., California sagebrush, coast buckwheat, and *Opuntia* cactus). Where more moisture is available (e.g., north-facing slopes), larger evergreen species such as toyon, laurel sumac, lemonade berry, and sugar bush are common. As a result, there is more cover for wildlife, and movement of large animals from chaparral into coastal sage scrub is facilitated in these areas. Characteristic wildlife in this community includes Anna's hummingbirds, rufous-sided towhees, California quail, greater roadrunners, Bewick's wrens, coyotes, and coast horned lizards[49], but most of these species move between coastal sage scrub and chaparral during their daily activities or on a seasonal basis.

Of the many important ecosystem roles performed by the coastal sage scrub community, five are particularly important in the Santa Monica Mountains. Coastal sage scrub provides critical linkages between riparian corridors, provides essential habitat for species that require several habitat types during the course of their life histories, provides essential habitat for local endemics, supports rare species that are in danger of extinction, and reduces erosion, thereby protecting the water quality of coastal streams.

Riparian woodlands are primary contributors to the high biodiversity of the Santa Monica Mountains. The ecological integrity of those riparian habitats not only requires wildlife dispersal along the streams, but also depends on the ability of animals to move from one riparian area to another. Such movement requires that the riparian corridors be connected by suitable habitat. In the Santa Monica Mountains, coastal sage scrub and chaparral provide that function. Significant development in coastal sage scrub would reduce the riparian corridors to linear islands of habitat with severe edge effects[50], reduced diversity, and lower productivity.

Most wildlife species and many species of plants utilize several types of habitat. Many species of animals endemic to Mediterranean habitats move among several plant communities during their daily activities and many are reliant on different communities either seasonally or during different stages of the their life cycle. Without an intact mosaic of coastal sage scrub, chaparral, and riparian community types, many species will not thrive. Specific examples of the importance of interconnected communities, or habitats, were provided in the discussion above. This is an essential ecosystem role of coastal sage scrub.

A characteristic of the coastal sage scrub vegetation type is a high degree of endemism. This is consonant with Westman's observation that 44 percent of the species he sampled in coastal sage scrub occurred at only one of his 67 sites, which were

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[49] National Park Service. 2000. Draft: General Management Plan & Environmental Impact Statement, Santa Monica Mountains National Recreation Area, US Dept. of Interior, National Park Service, December 2000.

[50] Environmental impacts are particularly severe at the interface between development and natural habitats. The greater the amount of this "edge" relative to the area of natural habitat, the worse the impact.

distributed from the San Francisco Bay area to Mexico[51]. Species with restricted distributions are by nature more susceptible to loss or degradation of their habitat. Westman said of this unique and local aspect of coastal sage scrub species in California:

> "While there are about 50 widespread sage scrub species, more than half of the 375 species encountered in the present study of the sage scrub flora are rare in occurrence within the habitat range. In view of the reduction of the area of coastal sage scrub in California to 10-15% of its former extent and the limited extent of preserves, measures to conserve the diversity of the flora are needed."[52]

Coastal sage scrub in southern California provides habitat for about 100 rare species[53], many of which are also endemic to limited geographic regions[54]. In the Santa Monica Mountains, rare animals that inhabit coastal sage scrub[55] include the Santa Monica shieldback katydid, silvery legless lizard, coastal cactus wren, Bell's sparrow, San Diego desert woodrat, southern California rufous-crowned sparrow, coastal western whiptail, and San Diego horned lizard. Some of these species are also found in chaparral[56]. Rare plants found in coastal sage scrub in the Santa Monica Mountains include Santa Susana tarplant, Coulter's saltbush, Blockman's dudleya, Braunton's milkvetch, Parry's spineflower, and Plummer's mariposa lily[57]. A total of 32 sensitive species of reptiles, birds and mammals have been identified in this community by the National Park Service.[58]

One of the most important ecological functions of coastal sage scrub in the Santa Monica Mountains is to protect water quality in coastal streams by reducing erosion in the watershed. Although shallow rooted, the shrubs that define coastal sage scrub have dense root masses that hold the surface soils much more effectively than the exotic annual grasses and forbs that tend to dominate in disturbed areas. The native shrubs of this community are resistant not only to drought, as discussed above, but well adapted to fire. Most of the semi-woody shrubs have some ability to crown sprout after

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[51] Westman, W.E. 1981. Diversity relations and succession in Californian coastal sage scrub. Ecology 62:170-184.
[52] Ibid.
[53] Atwood, J. L. 1993. California gnatcatchers and coastal sage scrub: The biological basis for endangered species listing. pp.149-166 *In*: Interface Between Ecology and Land Development in California. Ed. J. E. Keeley, So. Calif. Acad. of Sci., Los Angeles. California Department of Fish and Game (CDFG). 1993. The Southern California Coastal Sage Scrub (CSS) Natural Communities Conservation Plan (NCCP). CDFG and Calif. Resources Agency, 1416 9th St., Sacramento, CA 95814.
[54] Westman, W.E. 1981. op. cit.
[55] Biological Resources Assessment of the Proposed Santa Monica Mountains Significant Ecological Area. Nov. 2000. Los Angeles Co., Dept. of Regional Planning, 320 West Temple St., Rm. 1383, Los Angeles, CA 90012.
[56] O'Leary J.F., S.A. DeSimone, D.D. Murphy, P.F. Brussard, M.S. Gilpin, and R.F. Noss. 1994. Bibliographies on coastal sage scrub and related malacophyllous shrublands of other Mediterranean-type climates. *California Wildlife Conservation Bulletin* 10:1–51.
[57] Biological Resources Assessment of the Proposed Santa Monica Mountains Significant Ecological Area. Nov. 2000. Los Angeles Co., Dept. of Regional Planning, 320 West Temple St., Rm. 1383, Los Angeles, CA 90012.
[58] NPS, 2000, op cit.

fire. Several CSS species (e.g., *Eriogonum cinereum*) in the Santa Monica Mountains and adjacent areas resprout vigorously and other species growing near the coast demonstrate this characteristic more strongly than do individuals of the same species growing at inland sites in Riverside County.[59] These shrub species also tend to recolonize rapidly from seed following fire. As a result they provide persistent cover that reduces erosion.

In addition to performing extremely important roles in the Mediterranean ecosystem, the coastal sage scrub community type has been drastically reduced in area by habitat loss to development. In the early 1980's it was estimated that 85 to 90 percent of the original extent of coastal sage scrub in California had already been destroyed.[60] Losses since that time have been significant and particularly severe in the coastal zone.

Therefore, because of its increasing rarity, its important role in the functioning of the Santa Monica Mountains Mediterranean ecosystem, and its extreme vulnerability to development, coastal sage scrub within the Santa Monica Mountains meets the definition of ESHA under the Coastal Act.

Chaparral

Another shrub community in the Santa Monica Mountain Mediterranean ecosystem is chaparral. Like "coastal sage scrub," this is a generic category of vegetation. Chaparral species have deep roots (10s of ft) and hard waxy leaves, adaptations to drought that increase water supply and decrease water loss at the leaf surface. Some chaparral species cope more effectively with drought conditions than do desert plants[61]. Chaparral plants vary from about one to four meters tall and form dense, intertwining stands with nearly 100 percent ground cover. As a result, there are few herbaceous species present in mature stands. Chaparral is well adapted to fire. Many species regenerate mainly by crown sprouting; others rely on seeds which are stimulated to germinate by the heat and ash from fires. Over 100 evergreen shrubs may be found in chaparral[62]. On average, chaparral is found in wetter habitats than coastal sage scrub, being more common at higher elevations and on north facing slopes.

The broad category "northern mixed chaparral" is the major type of chaparral shown in the National Park Service map of the Santa Monica Mountains. However, northern mixed chaparral can be variously dominated by chamise, scrub oak or one of several species of manzanita or by ceanothus. In addition, it commonly contains woody vines and large shrubs such as mountain mahogany, toyon, hollyleaf redberry, and sugarbush[63]. The rare red shank chaparral plant community also occurs in the Santa Monica Mountains. Although included within the category "northern mixed chaparral" in

[59] Dr. John O'Leary, SDSU, personal communication to Dr. John Dixon, CCC, July 2, 2002
[60] Westman, W.E. 1981. op. cit.
[61] Dr. Stephen Davis, Pepperdine University. Presentation at the CCC workshop on the significance of native habitats in the Santa Monica Mountains. June 13, 2002.
[62] Keely, J.E. and S.C. Keeley. Chaparral. Pages 166-207 in M.G. Barbour and W.D. Billings, eds. North American Terrestrial Vegetation. New York, Cambridge University Press.
[63] Ibid.

the vegetation map, several types of ceanothus chaparral are reported in the Santa Monica Mountains. Ceanothus chaparral occurs on stable slopes and ridges, and may be dominated by bigpod ceanothus, buck brush ceanothus, hoaryleaf ceanothus, or greenbark ceanothus. In addition to ceanothus, other species that are usually present in varying amounts are chamise, black sage, holly-leaf redberry, sugarbush, and coast golden bush[64].

Several sensitive plant species that occur in the chaparral of the Santa Monica Mountains area are: Santa Susana tarplant, Lyon's pentachaeta, marcescent dudleya, Santa Monica Mountains dudleya, Braunton's milk vetch and salt spring checkerbloom[65]. Several occurring or potentially occurring sensitive animal species in chaparral from the area are: Santa Monica shieldback katydid, western spadefoot toad, silvery legless lizard, San Bernardino ring-neck snake, San Diego mountain kingsnake, coast patch-nosed snake, sharp-shinned hawk, southern California rufous-crowned sparrow, Bell's sparrow, yellow warbler, pallid bat, long-legged myotis bat, western mastiff bat, and San Diego desert woodrat.[66]

Coastal sage scrub and chaparral are the predominant generic community types of the Santa Monica Mountains and provide the living matrix within which rarer habitats like riparian woodlands exist. These two shrub communities share many important ecosystem roles. Like coastal sage scrub, chaparral within the Santa Monica Mountains provides critical linkages among riparian corridors, provides essential habitat for species that require several habitat types during the course of their life histories, provides essential habitat for sensitive species, and stabilizes steep slopes and reduces erosion, thereby protecting the water quality of coastal streams.

Many species of animals in Mediterranean habitats characteristically move among several plant communities during their daily activities, and many are reliant on different communities either seasonally or during different stages of their life cycle. The importance of an intact mosaic of coastal sage scrub, chaparral, and riparian community types is perhaps most critical for birds. However, the same principles apply to other taxonomic groups. For example, whereas coastal sage scrub supports a higher diversity of native ant species than chaparral, chaparral habitat is necessary for the coast horned lizard, an ant specialist[67]. Additional examples of the importance of an interconnected communities, or habitats, were provided in the discussion of coastal sage scrub above. This is an extremely important ecosystem role of chaparral in the Santa Monica Mountains.

Chaparral is also remarkably adapted to control erosion, especially on steep slopes. The root systems of chaparral plants are very deep, extending far below the surface and

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[64] Ibid.
[65] Biological Resources Assessment of the Proposed Santa Monica Mountains Significant Ecological Area. Nov. 2000. Los Angeles Co., Dept. of Regional Planning, 320 West Temple St., Rm. 1383, Los Angeles, CA 90012.
[66] Ibid.
[67] A.V. Suarez. Ants and lizards in coastal sage scrub and chaparral. A presentation at the CCC workshop on the significance of native habitats in the Santa Monica Mountains. June 13, 2002.

penetrating the bedrock below[68], so chaparral literally holds the hillsides together and prevents slippage.[69] In addition, the direct soil erosion from precipitation is also greatly reduced by 1) water interception on the leaves and above ground foliage and plant structures, and 2) slowing the runoff of water across the soil surface and providing greater soil infiltration. Chaparral plants are extremely resistant to drought, which enables them to persist on steep slopes even during long periods of adverse conditions. Many other species die under such conditions, leaving the slopes unprotected when rains return. Since chaparral plants recover rapidly from fire, they quickly re-exert their ground stabilizing influence following burns. The effectiveness of chaparral for erosion control after fire increases rapidly with time[70]. Thus, the erosion from a 2-inch rain-day event drops from 5 yd^3/acre of soil one year after a fire to 1 yd^3/acre after 4 years.[71] The following table illustrates the strong protective effect of chaparral in preventing erosion.

Soil erosion as a function of 24-hour precipitation and chaparral age.

Years Since Fire	Erosion (yd^3/acre) at Maximum 24-hr Precipitation of:		
	2 inches	5 inches	11 inches
1	5	20	180
4	1	12	140
17	0	1	28
50+	0	0	3

Therefore, because of its important roles in the functioning of the Santa Monica Mountains Mediterranean ecosystem, and its extreme vulnerability to development, chaparral within the Santa Monica Mountains meets the definition of ESHA under the Coastal Act.

Oak Woodland and Savanna

Coast live oak woodland occurs mostly on north slopes, shaded ravines and canyon bottoms. Besides the coast live oak, this plant community includes hollyleaf cherry, California bay laurel, coffeeberry, and poison oak. Coast live oak woodland is more

[68] Helmers, H., J.S. Horton, G. Juhren and J. O'Keefe. 1955. Root systems of some chaparral plants in southern California. Ecology 36(4):667-678. Kummerow, J. and W. Jow. 1977. Root systems of chaparral shrubs. Oecologia 29:163-177.

[69] Radtke, K. 1983. *Living more safely in the chaparral-urban interface*. General Technical Report PSW-67. U.S. Department of Agriculture, Forest Service, Pacific Southwest Research Station, Berkeley, California. 51 pp.

[70] Kittredge, J. 1973. Forest influences — the effects of woody vegetation on climate, water, and soil. Dover Publications, New York. 394 pp. Longcore, T and C. Rich. 2002. Protection of environmentally sensitive habitat areas in proposed local coastal plan for the Santa Monica Mountains. (Table 1). The Urban Wildlands Group, Inc., P.O. Box 24020 Los Angeles, CA 90024. Vicars, M. (ed.) 1999. FireSmart: protecting your community from wildfire. Partners in Protection, Edmonton, Alberta.

[71] Ibid.

tolerant of salt-laden fog than other oaks and is generally found nearer the coast[72]. Coast live oak also occurs as a riparian corridor species within the Santa Monica Mountains.

Valley oaks are endemic to California and reach their southern most extent in the Santa Monica Mountains. Valley oaks were once widely distributed throughout California's perennial grasslands in central and coastal valleys. Individuals of this species may survive 400-600 years. Over the past 150 years, valley oak savanna habitat has been drastically reduced and altered due to agricultural and residential development. The understory is now dominated by annual grasses and recruitment of seedlings is generally poor. This is a very threatened habitat.

The important ecosystem functions of oak woodlands and savanna are widely recognized[73]. These habitats support a high diversity of birds[74], and provide refuge for many species of sensitive bats[75]. Typical wildlife in this habitat includes acorn woodpeckers, scrub jays, plain titmice, northern flickers, cooper's hawks, western screech owls, mule deer, gray foxes, ground squirrels, jackrabbits and several species of sensitive bats.

Therefore, because of their important ecosystem functions and vulnerability to development, oak woodlands and savanna within the Santa Monica Mountains met the definition of ESHA under the Coastal Act.

Grasslands

Grasslands consist of low herbaceous vegetation that is dominated by grass species but may also harbor native or non-native forbs.

California Perennial Grassland

Native grassland within the Santa Monica Mountains consists of perennial native needlegrasses: purple needlegrass, (Nassella pulchra), foothills needlegrass, (Nassella lepida) and nodding needlegrass (Nassella cernua). These grasses may occur in the same general area but they do not typically mix, tending to segregate based on slope

[72] NPS 2000. op. cit.
[73] Block, W.M., M.L. Morrison, and J. Verner. 1990. Wildlife and oak-woodland interdependency. *Fremontia* 18(3):72–76. Pavlik, B.M., P.C. Muick, S. Johnson, and M. Popper. 1991. *Oaks of California.* Cachuma Press and California Oak Foundation, Los Olivos, California. 184 pp.
[74] Cody, M.L. 1977. Birds. Pp. 223–231 *in* Thrower, N.J.W., and D.E. Bradbury (eds.). *Chile-California Mediterranean scrub atlas.* US/IBP Synthesis Series 2. Dowden, Hutchinson & Ross, Stroudsburg, Pennsylvania. National Park Service. 1993. A checklist of the birds of the Santa Monica Mountains National Recreation Area. Southwest Parks and Monuments Assoc., 221 N. Court, Tucson, AZ. 85701
[75] Miner, K.L., and D.C. Stokes. 2000. Status, conservation issues, and research needs for bats in the south coast bioregion. Paper presented at *Planning for biodiversity: bringing research and management together,* February 29, California State University, Pomona, California.

and substrate factors[76]. Mixed with these native needlegrasses are many non-native annual species that are characteristic of California annual grassland[77]. Native perennial grasslands are now exceedingly rare[78]. In California, native grasslands once covered nearly 20 percent of the land area, but today are reduced to less than 0.1 percent[79]. The California Natural Diversity Database (CNDDB) lists purple needlegrass habitat as a community needing priority monitoring and restoration. The CNDDB considers grasslands with 10 percent or more cover by purple needlegrass to be significant, and recommends that these be protected as remnants of original California prairie. Patches of this sensitive habitat occur throughout the Santa Monica Mountains where they are intermingled with coastal sage scrub, chaparral and oak woodlands.

Many of the raptors that inhabit the Santa Monica Mountains make use of grasslands for foraging because they provide essential habitat for small mammals and other prey. Grasslands adjacent to woodlands are particularly attractive to these birds of prey since they simultaneously offer perching and foraging habitat. Particularly noteworthy in this regard are the white-tailed kite, northern harrier, sharp-shinned hawk, Cooper's hawk, red-shouldered hawk, red-tailed hawk, golden eagle, American kestrel, merlin, and prairie falcon[80].

Therefore, because of their extreme rarity, important ecosystem functions, and vulnerability to development, California native perennial grasslands within the Santa Monica Mountains meet the definition of ESHA under the Coastal Act.

California Annual Grassland

The term "California annual grassland" has been proposed to recognize the fact that non-native annual grasses should now be considered naturalized and a permanent feature of the California landscape and should be acknowledged as providing important ecological functions. These habitats support large populations of small mammals and provide essential foraging habitat for many species of birds of prey. California annual grassland generally consists of dominant invasive annual grasses that are primarily of Mediterranean origin. The dominant species in this community include common wild oats (Avena fatua), slender oat (Avena barbata), red brome (Bromus madritensis ssp. Rubens), ripgut brome, (Bromus diandrus), and herbs such as black mustard (Brassica nigra), wild radish (Raphanus sativus) and sweet fennel (Foeniculum vulgare). Annual grasslands are located in patches throughout the Santa Monica Mountains in previously disturbed areas, cattle pastures, valley bottoms and along roadsides. While many of

[76] Sawyer, J. O. and T. Keeler-Wolf. 1995. A manual of California vegetation. California Native Plant Society, 1722 J St., Suite 17, Sacramento, CA 95814.
[77] Biological Resources Assessment of the Proposed Santa Monica Mountains Significant Ecological Area. Nov. 2000. Los Angeles Co., Dept. of Regional Planning, 320 West Temple St., Rm. 1383, Los Angeles, CA 90012.
[78] Noss, R.F., E.T. LaRoe III and J.M. Scott. 1995. Endangered ecosystems of the United States: a preliminary assessment of loss and degradation. Biological Report 28. National Biological Service, U.S. Dept. of Interior.
[79] NPS 2000. op. cit.
[80] NPS 2000. op. cit.

these patches are dominated by invasive non-native species, it would be premature to say that they are never sensitive or do not harbor valuable annual native species. A large number of native forbs also may be present in these habitats[81], and many native wildflowers occur primarily in annual grasslands. In addition, annual grasslands are primary foraging areas for many sensitive raptor species in the area.

Inspection of California annual grasslands should be done prior to any impacts to determine if any rare native species are present or if any rare wildlife rely on the habitat and to determine if the site meets the Coastal Act ESHA criteria.

Effects of Human Activities and Development on Habitats within the Santa Monica Mountains

The natural habitats of the Santa Monica Mountains are highly threatened by current development pressure, fragmentation and impacts from the surrounding megalopolis. The developed portions of the Santa Monica Mountains represents the extension of this urbanization into natural areas. About 54% of the undeveloped Santa Monica Mountains are in private ownership[82], and computer simulation studies of the development patterns over the next 25 years predict a serious increase in habitat fragmentation[83]. Development and associated human activities have many well-documented deleterious effects on natural communities. These environmental impacts may be both direct and indirect and include the effects of increased fire frequency, of fire clearance, of introduction of exotic species, and of night lighting.

Increased Fire Frequency

Since 1925, all the major fires in the Santa Monica Mountains have been caused by human activities[84]. Increased fire frequency alters plant communities by creating conditions that select for some species over others. Strong resprouting plant species such as laurel sumac, are favored while non-sprouters like bigpod ceanothus, are at a disadvantage. Frequent fire recurrence before the non-sprouters can develop and reestablish a seed bank is detrimental, so that with each fire their chances for propagation are further reduced. Resprouters can be sending up new shoots quickly, and so they are favored in an increased fire frequency regime. Also favored are weedy and invasive species. Dr. Steven Davis in his abstract for a Coastal Commission

[81] Holstein, G. 2001. Pre-agricultural grassland in Central California. Madrono 48(4):253-264. Stromberg, M.R., P. Kephart and V. Yadon. 2001. Composition, invasibility and diversity of coastal California grasslands. Madrono 48(4):236-252.
[82] National Park Service. 2000. Draft: General Management Plan & Environmental Impact Statement, Santa Monica Mountains National Recreation Area, US Dept. of Interior, National Park Service, December 2000.
[83] Swenson, J. J., and J. Franklin. 2000. The effects of future urban development on habitat fragmentation in the Santa Monica Mountains. Landscape Ecol. 15:713-730.
[84] NPS, 2000, op. cit.

Workshop stated[85] "*We have evidence that recent increases in fire frequency has eliminated drought-hardy non-sprouters from chaparral communities near Malibu, facilitating the invasion of exotic grasses and forbs that further exacerbate fire frequency.*" Thus, simply increasing fire frequency from about once every 22 years (the historical frequency) to about once every 12 years (the current frequency) can completely change the vegetation community. This has cascading effects throughout the ecosystem.

Fuel Clearance

The removal of vegetation for fire protection in the Santa Monica Mountains is required by law in "Very High Fire Hazard Severity Zones"[86]. Fuel removal is reinforced by insurance carriers[87]. Generally, the Santa Monica Mountains are considered to be a high fire hazard severity zone. In such high fire hazard areas, homeowners must often resort to the California FAIR Plan to obtain insurance. Because of the high risk, all homes in "brush areas" are assessed an insurance surcharge if they have less than the recommended 200-foot fuel modification zone[88] around the home. The combination of insurance incentives and regulation assures that the 200-foot clearance zone will be applied universally[89]. While it is not required that all of this zone be cleared of vegetation, the common practice is simply to disk this zone, essentially removing or highly modifying all native vegetation. For a new structure not adjacent to existing structures, this results in the removal or modification of a minimum of three acres of vegetation[90]. While the directly impacted area is large, the effects of fuel modification extend beyond the 200-foot clearance area.

Effects of Fuel Clearance on Bird Communities

The impacts of fuel clearance on bird communities was studied by Stralberg who identified three ecological categories of birds in the Santa Monica Mountains: 1) local and long distance migrators (ash-throated flycatcher, Pacific-slope flycatcher, phainopepla, black-headed grosbeak), 2) chaparral-associated species (Bewick's wren, wrentit, blue-gray gnatcatcher, California thrasher, orange-crowned warbler, rufous-crowned sparrow, spotted towhee, California towhee) and 3) urban-associated species

[85] Davis, Steven. Effects of fire and other factors on patterns of chaparral in the Santa Monica Mountains, Coastal Commission Workshop on the Significance of Native Habitats in the Santa Monica Mountains. CCC Hearing, June 13, 2002, Queen Mary Hotel.
[86] 1996 Los Angeles County Fire Code Section 1117.2.1
[87] Longcore, T and C. Rich. 2002. Protection of environmentally sensitive habitat areas in proposed local coastal plan for the Santa Monica Mountains. The Urban Wildlands Group, Inc., P.O. Box 24020 Los Angeles, CA 90024. Vicars, M. (ed.) 1999. FireSmart: protecting your community from wildfire. Partners in Protection, Edmonton, Alberta.
[88] Fuel Modification Plan Guidelines. Co. of Los Angeles Fire Department, Fuel Modification Unit, Prevention Bureau, Forestry Division, Brush Clearance Section, January 1998.
[89] Longcore, T and C. Rich. 2002. Protection of environmentally sensitive habitat areas in proposed local coastal plan for the Santa Monica Mountains. The Urban Wildlands Group, Inc., P.O. Box 24020 Los Angeles, CA 90024.
[90] Ibid.

(mourning dove, American crow, Western scrub-jay, Northern mockingbird)[91]. It was found in this study that the number of migrators and chaparral-associated species decreased due to habitat fragmentation while the abundance of urban-associated species increased. The impact of fuel clearance is to greatly increase this edge-effect of fragmentation by expanding the amount of cleared area and "edge" many-fold. Similar results of decreases in fragmentation-sensitive bird species are reported from the work of Bolger et al. in southern California chaparral[92].

Effects of Fuel Clearance on Arthropod Communities

Fuel clearance and habitat modification may also disrupt native arthropod communities, and this can have surprising effects far beyond the cleared area on species seemingly unrelated to the direct impacts. A particularly interesting and well-documented example with ants and lizards illustrates this point. When non-native landscaping with intensive irrigation is introduced, the area becomes favorable for the invasive and non-native Argentine ant. This ant forms "super colonies" that can forage more than 650 feet out into the surrounding native chaparral or coastal sage scrub around the landscaped area[93]. The Argentine ant competes with native harvester ants and carpenter ants displacing them from the habitat[94]. These native ants are the primary food resource for the native coast horned lizard, a California "Species of Special Concern." As a result of Argentine ant invasion, the coast horned lizard and its native ant food resources are diminished in areas near landscaped and irrigated developments[95]. In addition to specific effects on the coast horned lizard, there are other Mediterranean habitat ecosystem processes that are impacted by Argentine ant invasion through impacts on long-evolved native ant-plant mutualisms[96]. The composition of the whole arthropod community changes and biodiversity decreases when habitats are subjected to fuel modification. In coastal sage scrub disturbed by fuel modification, fewer arthropod

[91] Stralberg, D. 2000. Landscape-level urbanization effects on chaparral birds: a Santa Monica Mountains case study. Pp. 125–136 *in* Keeley, J.E., M. Baer-Keeley, and C.J. Fotheringham (eds.). *2nd interface between ecology and land development in California*. U.S. Geological Survey, Sacramento, California.
[92] Bolger, D. T., T. A. Scott and J. T. Rotenberry. 1997. Breeding bird abundance in an urbanizing landscape in coastal Southern California. Conserv. Biol. 11:406-421.
[93] Suarez, A.V., D.T. Bolger and T.J. Case. 1998. Effects of fragmentation and invasion on native ant communities in coastal southern California. Ecology 79(6):2041-2056.
[94] Holway, D.A. 1995. The distribution of the Argentine ant (*Linepithema humile*) in central California: a twenty-year record of invasion. Conservation Biology 9:1634-1637. Human, K.G. and D.M. Gordon. 1996. Exploitation and interference competition between the invasive Argentine ant, (*Linepithema humile*), and native ant species. Oecologia 105:405-412.
[95] Fisher, R.N., A.V. Suarez and T.J. Case. 2002. Spatial patterns in the abundance of the coastal horned lizard. Conservation Biology 16(1):205-215. Suarez, A.V. J.Q. Richmond and T.J. Case. 2000. Prey selection in horned lizards following the invasion of Argentine ants in southern California. Ecological Applications 10(3):711-725.
[96] Suarez, A.V., D.T. Bolger and T.J. Case. 1998. Effects of fragmentation and invasion on native ant communities in coastal southern California. Ecology 79(6):2041-2056. Bond, W. and P. Slingsby. Collapse of an Ant-Plant Mutualism: The Argentine Ant (*Iridomyrmex humilis*) and Myrmecochorous Proteaceae. Ecology 65(4):1031-1037.

predator species are seen and more exotic arthropod species are present than in undisturbed habitats[97].

Studies in the Mediterranean vegetation of South Africa (equivalent to California shrubland with similar plant species) have shown how the invasive Argentine ant can disrupt the whole ecosystem.[98] In South Africa the Argentine ant displaces native ants as they do in California. Because the native ants are no longer present to collect and bury seeds, the seeds of the native plants are exposed to predation, and consumed by seed eating insects, birds and mammals. When this habitat burns after Argentine ant invasion the large-seeded plants that were protected by the native ants all but disappear. So the invasion of a non-native ant species drives out native ants, and this can cause a dramatic change in the species composition of the plant community by disrupting long-established seed dispersal mutualisms. In California, some insect eggs are adapted to being buried by native ants in a manner similar to plant seeds[99].

Artificial Night Lighting

One of the more recently recognized human impacts on ecosystem function is that of artificial night lighting as it effects the behavior and function of many different types of organisms[100]. For literally billions of years the only nighttime sources of light were the moon and stars, and living things have adapted to this previously immutable standard and often depend upon it for their survival. A review of lighting impacts suggests that whereas some species are unaffected by artificial night lighting, many others are severely impacted. Overall, most impacts are negative ones or ones whose outcome is unknown. Research to date has found negative impacts to plants, aquatic and terrestrial invertebrates, amphibians, fish, birds and mammals, and a detailed literature review can be found in the report by Longcore and Rich[101].

Summary

In a past action, the Coastal Commission found[102] that the Santa Monica Mountains Mediterranean Ecosystem, which includes the undeveloped native habitats of the Santa Monica Mountains, is rare and especially valuable because of its relatively pristine

[97] Longcore, T.R. 1999. Terrestrial arthropods as indicators of restoration success in coastal sage scrub. Ph.D. Dissertation, University of California, Los Angeles.
[98] Christian, C. 2001. Consequences of a biological invasion reveal the importance of mutualism for plant communities. Nature 413:635-639.
[99] Hughes, L. and M. Westoby. 1992. Capitula on stick insect eggs and elaiosomes on seeds: convergent adaptations for burial by ants. Functional Ecology 6:642-648.
[100] . Longcore, T and C. Rich. 2002. Protection of environmentally sensitive habitat areas in proposed local coastal plan for the Santa Monica Mountains. The Urban Wildlands Group, Inc., P.O. Box 24020 Los Angeles, CA 90024.
[101] Ibid, and Ecological Consequences of Artificial Night Lighting, Conference, February 23-24, 2002, UCLA Los Angeles, California.
[102] Revised Findings for the City of Malibu Local Coastal Program (as adopted on September 13, 2002) adopted on February 6, 2003.

character, physical complexity, and resultant biological diversity. The undeveloped native habitats within the Santa Monica Mountains that are discussed above are ESHA because of their valuable roles in that ecosystem, including providing a critical mosaic of habitats required by many species of birds, mammals and other groups of wildlife, providing the opportunity for unrestricted wildlife movement among habitats, supporting populations of rare species, and preventing the erosion of steep slopes and thereby protecting riparian corridors, streams and, ultimately, shallow marine waters.

The importance the native habitats in the Santa Monica Mountains was emphasized nearly 20 years ago by the California Department of Fish and Game[103]. Commenting on a Draft Land Use Plan for the City of Malibu, the Regional Manager wrote that, "It is essential that large areas of land be reclassified to reflect their true status as ESHAs. One of the major needs of the Malibu LUP is that it should provide protection for entire drainages and not just stream bottoms." These conclusions were supported by the following observations:

> "It is a fact that many of the wildlife species of the Santa Monica Mountains, such as mountain lion, deer, and raccoon, have established access routes through the mountains. They often travel to and from riparian zones and development such as high density residential may adversely affect a wildlife corridor.
>
> Most animal species that exist in riparian areas will, as part of their life histories, also be found in other habitat types, including chapparal (sic) or grassland. For example, hawks nest and roost in riparian areas, but are dependent on large open areas for foraging. For the survival of many species, particularly those high on the food chain, survival will depend upon the presence of such areas. Such areas in the Santa Monica Mountains include grassland and coastal sage scrub communities, which have been documented in the SEA studies as supporting a wide diversity of plant and animal life."

This analysis by the Department of Fish and Game is consonant with the findings of the Commission in the case of the Malibu LCP, and with the conclusion that large contiguous areas of relatively pristine native habitat in the Santa Monica Mountains meet the definition of ESHA under the Coastal Act.

[103] Letter from F. A. Worthley, Jr. (CDFG) to N. Lucast (CCC) re Land Use Plan for Malibu dated March 22, 1983.

Source: Resource Conservation District of the Santa Monica Mountains. Aerial Photograph, I.K. Curtis, 1997.

Exhibit 9
4-07-002
Site Delineations