

CALIFORNIA COASTAL COMMISSION

SOUTH CENTRAL COAST AREA
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Commission Action:

**STAFF REPORT: REGULAR CALENDAR****APPLICATION NO.: 4-04-052****APPLICANT: Jack Moses, BMG Development LLC****AGENT: Schmitz & Associates****PROJECT LOCATION: 25155 Piuma Road, Malibu (Los Angeles County)**

PROJECT DESCRIPTION: Construction of a 5,007 sq. ft., 35 ft. high, three story, single-family residence with attached 600 sq. ft., two car garage; pool; spa; pool shed; 5,000 gallon water tank; septic system; retaining walls; access driveway; 2,329 cu. yds of grading (1,899 cu. yds. cut; 430 cu. yds. fill; 1,469 cu. yds export); and after the fact approval of a water well. Geologic conditions onsite also require 200 cu. yds of remedial grading (all cut and export) to remove a debris flow.

Lot area:	6.91 acres
Building coverage:	2,688 sq. ft.
Pavement coverage:	3,766 sq. ft.
Driveway and turnaround:	9,100 sq. ft.
Landscape coverage:	47,270 sq. ft.
Height above existing grade	35 ft.
Parking spaces:	2 spaces

LOCAL APPROVALS RECEIVED: L.A. County Approval in Concept; Health Department approvals for septic system and water well; L.A. County Environmental Review Board "Consistent after Modifications" determination; Fire Department approval of Fuel Modification Plan and access road/ turn-around areas.

SUBSTANTIVE FILE DOCUMENTS: "Percolation Test Results and Septic System Design Report for Proposed Single Family Residence, 25155 Piuma Road, Malibu," Gold Coast Geoservices, Inc., 8/5/03; "Geologic/Geotechnical Engineering Report Proposed Rough Grading fro Single Family Residence 25155 Piuma Road, Calabasas," Gold Coast Geoservices, Inc., 8/15/03; "Engineering Geologic Report from Observations and Analysis of Soil Slippage from Piuma Road into Property at 25155 Piuma Road, Calabasas," Gold Coast Geoservices, Inc, 3/31/05; "Biological Survey, 25155 Piuma Road," ENSR International, 8/2/04; Conditional Certificate of Compliance 9686 recorded Document No. 87-1614437 on 10/7/87; Certificate of Compliance Clearance of Conditions in C.C. 9686 recorded Document No. 02-1755109 on July 6/26/02; Certificate of Compliance 100,826 recorded Document No. 90-032881 on 1/8/90; and CDP 5-90-314 (Heller) approved with conditions 3/17/91.

SUMMARY OF STAFF RECOMMENDATION

Staff recommends **APPROVAL** of the proposed project with **TWELVE (12) SPECIAL CONDITIONS** regarding (1) geologic recommendations, (2) drainage and polluted runoff control, (3) landscaping and erosion control plans, (4) assumption of risk, (5) removal of natural vegetation, (6) future development, (7) habitat impact mitigation, (8) pool drainage and maintenance, (9) lighting restrictions, (10) structural appearance, (11) removal of excess material, (12) deed restriction, and (13) open space deed restriction.

The project site is a vacant 6.91-acre parcel located on a steep hillside in the north-central part of the Santa Monica Mountains on Piuma Road. The property is located in chaparral habitat considered environmentally sensitive habitat area (ESHA). However, a portion of the site has been disturbed by past development that predates the Coastal Act. The past development includes a 20 to 40 foot wide and 300-foot long dozer trail on the northern portion of the property. The area surrounding the project site is characterized by natural hillside terrain, which is undeveloped with the exception of a few single-family residences.

The applicant proposes construction of a 5,007 sq. ft., 35 ft. high, three story, single-family residence with attached 600 sq. ft. two-car garage. The proposed project will include a pool, spa, pool shed, 5,000 gallon water tank, septic system, retaining walls; access driveway; after the fact approval of a water well; and 2,329 cu. yds of grading (1,899 cu. yds. cut; 430 cu. yds. fill; 1,469 cu. yds export). Geologic conditions onsite also require 200 cu. yds of remedial grading (all cut and export) to remove a debris flow. All improvements, excluding a portion of the proposed residence, retaining walls, and the 5,000-gallon water tank, will be located on the existing disturbed dozer trail not considered ESHA. The proposed residence, due to limited space, will be stepped into a hillside with chaparral ESHA. The residence also requires the removal of chaparral ESHA as a result of fuel modification for fire protection purposes. The fuel modification plan has been revised to limit brush clearance in the vicinity of an upland drainage on the east side of the property and to disallow thinning outside of the subject property. The 5,000-gallon water tank will be located behind the residence in the area to be completely cleared as Zone A for fuel modification.

Standing alone, Section 30240 would require the denial of the proposed development to prevent adverse impacts to ESHA from the construction of the proposed residence, water tank, and required fuel modification. However, Section 30010 provides that the Commission cannot construe the Coastal Act as authorizing the denial of a permit in a manner that will take private property for public use. To avoid a "taking" of private property, the Commission must allow a reasonable residential development on the applicant's parcel.

The total proposed development area for the project is approximately 6,454 sq. ft. The development had been sited and designed to minimize landform alternation, removal of ESHA, and visual impacts to the maximum extent possible while still providing residential use of the site. The standard of review for the proposed permit application is the Chapter Three policies of the Coastal Act. In addition, the policies of the certified Malibu/Santa Monica Mountains Land Use Plan serve as guidance. As conditioned, the proposed project is consistent with all applicable Chapter Three policies of the Coastal Act.

STAFF RECOMMENDATION:

I. Approval with Conditions

The staff recommends that the Commission adopt the following resolution:

MOTION: *I move that the Commission approve Coastal Development Permit No. 4-04-052 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 a coastal development permit 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 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. Plans Conforming to Geologic Recommendations

By acceptance of this permit, the applicant agrees to comply with the recommendations contained in the submitted geologic reports "Percolation Test Results and Septic System Design Report for Proposed Single Family Residence, 25155 Piuma Road, Malibu, County of Los Angeles," Gold Coast Geoservices, Inc., August 5, 2003; "Geologic/Geotechnical Engineering Report Proposed Rough Grading for a Single Family Residence 25155 Piuma Road, Calabasas, CA," Gold Coast Geoservices, Inc., August 15, 2003; "Engineering Geologic Report from Observations and Analysis of Soil Slippage from Piuma Road into Property at 25155 Piuma Road, Calabasas, County of Los Angeles," Gold Coast Geoservices, Inc., March 31, 2005). These recommendations, including those concerning foundations, grading, site design, sewage disposal, and drainage, shall be incorporated into all final design and construction, and must be reviewed and approved by the consultant prior to commencement of development.

The final plans approved by the consultant shall be in substantial conformance with the plans approved by the Commission relative to construction, grading, sewage disposal, and drainage. Any substantial changes in the proposed development approved by the Commission that may be required by the consultant shall require amendment(s) to the permit(s) or new Coastal Development Permit(s).

2. Drainage and Polluted Runoff Control Plans

Prior to the issuance of the Coastal Development Permit, the applicant shall submit to the Executive Director for review and written approval, two sets of final drainage and runoff control plans, including supporting calculations. The final plans shall be prepared by a licensed engineer and shall incorporate structural and non-structural Best Management Practices (BMPs) designed to control the volume, velocity and pollutant load of stormwater leaving the developed site. The plan shall be reviewed and approved by the consulting engineering geologist to ensure the plan is in conformance with geologist's recommendations. In addition to the specifications above, the plan shall be in substantial conformance with the following requirements:

- (a) Selected BMPs (or suites of BMPs) shall be designed to treat, infiltrate or filter the amount of stormwater runoff produced by all storms up to and including the 85th percentile, 24-hour runoff event for volume-based BMPs, and/or the 85th percentile, 1-hour runoff event, with an appropriate safety factor (i.e., 2 or greater), for flow-based BMPs.
- (b) Runoff shall be conveyed off site in a non-erosive manner.
- (c) Energy dissipating measures shall be installed at the terminus of outflow drains.
- (d) The plan shall include provisions for maintaining the drainage system, including structural BMPs, in a functional condition throughout the life of the approved development. Such maintenance shall include the following: (1) BMPs shall be inspected, cleaned and repaired when necessary prior to the onset of the storm season, no later than September 30th each year and (2) should any of the project's surface or subsurface drainage/filtration structures or other BMPs fail or result in increased erosion, the applicant/landowner or successor-in-interest shall be responsible for any necessary repairs to the drainage/filtration system or BMPs and restoration of the eroded area. Should repairs or restoration become necessary, prior to the commencement of such repair or restoration work, the applicant shall submit a repair and restoration plan to the Executive Director to determine if an amendment or new coastal development permit is required to authorize such work.

3. Landscaping and Erosion Control Plans

Prior to issuance of a Coastal Development Permit, the applicant shall submit two sets of final landscaping and erosion control plans, prepared by a licensed landscape architect or a qualified resource specialist, for review and approval by the Executive Director. The landscaping and erosion control plans shall be reviewed and approved by the geotechnical engineering and geologic consultant to ensure that the plans are in conformance with the consultant's recommendations. The plans shall identify the species, extent, and location of all plant materials and shall incorporate the following criteria:

A. Landscaping Plan

- (1) All graded and disturbed areas on the subject site shall be planted and maintained for erosion control purposes within (60) days of receipt of the certificate of occupancy for the residence. To minimize the need for irrigation, all landscaping shall consist primarily of native/drought resistant plants as listed by the California Native Plant Society, Santa Monica Mountains Chapter, in their document entitled *Recommended List of Plants for Landscaping in the Santa Monica Mountains*, dated February 5, 1996. Invasive, non-indigenous plant species, which tend to supplant native species, shall not be used.

- (2) All cut and fill slopes shall be stabilized with planting at the completion of final grading. Plantings should be of native plant species indigenous to the Santa Monica Mountains using accepted planting procedures, consistent with fire safety requirements. Such planting shall be adequate to provide 90 percent coverage within two (2) years, and this requirement shall apply to all disturbed soils.
- (3) Plantings will be maintained in good growing condition throughout the life of the project and, whenever necessary, shall be replaced with new plant materials to ensure continued compliance with applicable landscape requirements.
- (4) The permittee shall undertake development in accordance with the final approved plan. Any proposed changes to the approved final plan shall be reported to the Executive Director. No changes to the approved final plan shall occur without a Coastal Commission approved amendment to the coastal development permit, unless the Executive Director determines that no amendment is required.
- (5) Vegetation within 100 feet of the proposed house may be removed to mineral earth, vegetation within a 200-foot radius of the main structure may be selectively thinned in order to reduce fire hazard. However, such thinning shall only occur in accordance with the approved long-term fuel modification plan submitted pursuant to this special condition. The final fuel modification plan shall include details regarding the types, sizes and location of plant materials to be removed, and how often thinning is to occur. In addition the fuel modification plan shall specify that no riparian plant species shall be removed or disturbed, if found on the property. Only thinning or removal of dead plant material shall be allowed for fuel modification purposes within any riparian areas or the arroyo located on the east side of the property. Fuel modification, as outlined in the preliminary Fuel Modification Plan approved by the Fire Department February 10, 2004 for the project, shall not extend onto lands owned by the Santa Monica Mountains Recreation Conservation Authority. The applicant shall submit evidence that the final fuel modification plan has been reviewed and approved by the Forestry Department of Los Angeles County. Irrigated lawn, turf and ground cover planted within the fifty foot radius of the proposed house shall be selected from the most drought tolerant species or subspecies, or varieties suited to the Mediterranean climate of the Santa Monica Mountains.
- (6) Fencing of the entire property is prohibited. Fencing shall extend no further than the building pad area as generally shown on **Exhibit 3**. The fencing type and location shall be illustrated on the landscape plan. Fencing shall also be subject to the color requirements outlined in Special Condition Ten (10) below.
- (7) The use of rodenticides containing any anticoagulant compounds (including, but not limited to, Bromadiolone or Diphacinone) shall not be used.

B. Interim Erosion Control Plan

- (1) The plan shall delineate the areas to be disturbed by grading or construction activities and shall include any temporary access roads, staging areas and stockpile areas. The natural areas on the site shall be clearly delineated on the project site with fencing or survey flags.
- (2) The plan shall specify that should grading take place during the rainy season (November 1 – March 31) the applicant shall install or construct temporary sediment basins (including debris basins, desilting basins or silt traps), temporary drains and swales, sand bag barriers, silt fencing, stabilize any stockpiled fill with geofabric covers or other appropriate cover, install geotextiles or mats on all cut or fill slopes and close and stabilize open trenches as soon as possible. These erosion measures shall be required on the project site prior to or concurrent with the initial grading operations and maintained through out the development process to minimize erosion and sediment from runoff waters during construction. All sediment should be retained on-site unless removed to an appropriate approved dumping location either outside the coastal zone or to a site within the coastal zone permitted to receive fill.
- (3) The plan shall also include temporary erosion control measures should grading or site preparation cease for a period of more than 30 days, including but not limited to: stabilization of all stockpiled fill, access roads, disturbed soils and cut and fill slopes with geotextiles and/or mats, sand bag barriers, silt fencing; temporary drains and swales and sediment basins. The plans shall also specify that all disturbed areas shall be seeded with native grass species and include the technical specifications for seeding the disturbed areas. These temporary erosion control measures shall be monitored and maintained until grading or construction operations resume.

C. Monitoring

Five (5) years from the date of completion of the proposed development, the applicant shall submit for the review and approval of the Executive Director a landscape monitoring report, prepared by a licensed Landscape Architect or qualified Resource Specialist, that assesses the on-site landscaping and certifies whether it is in conformance with the landscape plan approved pursuant to this special condition. The monitoring report shall include photographic documentation of plant species and plant coverage.

If the landscape monitoring report indicates the landscaping is not in conformance with or has failed to meet the performance standards specified in the landscaping plan approved pursuant to these permits, the applicant, or successors in interest, shall submit a revised or supplemental landscape plan for the review and approval of the Executive Director. The supplemental landscaping plan must be prepared by a licensed landscape architect or qualified 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. The permittee shall implement the remedial measures specified in the approved supplemental landscape plan.

4. Assumption of Risk

By acceptance of this permit, the applicant acknowledges and agrees (i) that the site may be subject to hazards from landslide, erosion, earth movement, and wildfire; (ii) to assume the risks to the applicant and the property that is the subject of this permit of injury and damage from such hazards in connection with this permitted development; (iii) to unconditionally waive any claim of damage or liability against the Commission, its officers, agents, and employees for injury or damage from such hazards; and (iv) to indemnify and hold harmless the Commission, its officers, agents, and employees with respect to the Commission's approval of the project against any and all liability, claims, demands, damages, costs (including costs and fees incurred in defense of such claims), expenses, and amounts paid in settlement.

5. Removal of Natural Vegetation

Removal of natural vegetation for the purpose of fuel modification for the development approved pursuant to these permits shall not commence until the local government has issued a building or grading permit(s) for the development approved pursuant to these Coastal Development Permits.

6. Future Development Restriction

This permit is only for the development described in Coastal Development Permit 4-04-052. Pursuant to Title 14 California Code of Regulations Section 13250(b)(6) and Section 13252(b)(6), the exemptions otherwise provided in Public Resources Code Section 30610(a) and (b) shall not apply to the development governed by Coastal Development Permit 4-04-052. Accordingly, any future structures, future improvements, or change of use to the permitted structures authorized by these permits, including but not limited to any grading, clearing or other disturbance of vegetation and fencing, other than as provided for in the approved fuel modification/landscape plan prepared pursuant to Special Condition Three (3), shall require an amendment to Coastal Development Permit 4-04-052 from the Commission or shall require additional coastal development permits from the Commission or from the applicable certified local government.

7. Habitat Impact Mitigation

Prior to the issuance of the Coastal Development Permit, the applicant shall submit for the review and approval of the Executive Director, a map delineating all areas of chaparral habitat (ESHA) that will be disturbed by the proposed development, including by fuel modification requirements on the project site (based on the final fuel modification plan approved by the Los Angeles County Fire Department). The chaparral areas on the site shall be delineated on a detailed map, to scale, illustrating

the subject parcel boundaries. The delineation map shall indicate the total acreage for all chaparral onsite that will be impacted by the proposed development, including the fuel modification areas. The existing graded pad and driveway is excluded from the total acreage of ESHA impacted. The delineation shall be prepared by a qualified resource specialist or biologist familiar with the ecology of the Santa Monica Mountains.

Mitigation shall be provided for impacts to the chaparral ESHA from the proposed development and fuel modification requirements by one of the three following habitat mitigation methods:

A. Habitat Restoration

1) Habitat Restoration Plan

Prior to the issuance of the Coastal Development Permit, the applicant shall submit a habitat restoration plan, for the review and approval of the Executive Director, for an area of degraded chaparral habitat equivalent to the area of chaparral ESHA impacted by the proposed development and fuel modification area. The habitat restoration area may either be onsite or offsite within the coastal zone in the City of Malibu or in the Santa Monica Mountains. The habitat restoration area shall be delineated on a detailed site plan, to scale, that illustrates the parcel boundaries and topographic contours of the site. The habitat restoration plan shall be prepared by a qualified resource specialist or biologist familiar with the ecology of the Santa Monica Mountains, and shall be designed to restore the area in question for habitat function, species diversity and vegetation cover. The restoration plan shall include a statement of goals and performance standards, revegetation and restoration methodology, and maintenance and monitoring provisions. If the restoration site is offsite the applicant shall submit written evidence to the Executive Director that the property owner agrees to the restoration work, maintenance and monitoring required by this condition and agrees not to disturb any native vegetation in the restoration area.

The applicant shall submit, on an annual basis for five years, a written report, for the review and approval of the Executive Director, prepared by a qualified resource specialist, evaluating compliance with the performance standards outlined in the restoration plan and describing the revegetation, maintenance and monitoring that was conducted during the prior year. The annual report shall include recommendations for mid-course corrective measures. At the end of the five-year period, a final detailed report shall be submitted for the review and approval of the Executive Director. If this report indicates that the restoration project has been in part, or in whole, unsuccessful, based on the approved goals and performance standards, the applicant shall submit a revised or supplemental restoration plan with maintenance and monitoring provisions, for the review and approval of the Executive Director, to compensate for those portions of the original restoration plan that were not successful. A report shall be submitted evaluating whether the

supplemental restoration plan has achieved compliance with the goals and performance standards for the restoration area. If the goals and performance standards are not met within 10 years, the applicant shall submit an amendment to the coastal development permit for an alternative mitigation program.

The habitat restoration plan shall be implemented prior to occupancy of the residence.

2) Open Space Deed Restriction

No development, as defined in Section 30106 of the Coastal Act shall occur in the habitat restoration area, as shown on the habitat restoration site plan, required pursuant to (A)(1) above.

Prior to the issuance of the coastal development permit, the owner of the habitat restoration area shall execute and record a deed restriction in a form and content acceptable to the Executive Director, reflecting the above restriction on development and designating the habitat restoration area as open space. The deed restriction shall include a graphic depiction and narrative legal descriptions of both the parcel and the open space area/habitat restoration area. The deed restriction shall run with the land, binding all successors and assigns, and shall be recorded free of prior liens that the Executive Director determines may affect the enforceability of the restriction. This deed restriction shall not be removed or changed without a Commission amendment to this coastal development permit.

3) Performance Bond

Prior to the issuance of the permit, the applicant shall post performance bonds to guarantee implementation of the restoration plan as follows: a) one equal to the value of the labor and materials; and b) one equal to the value of the maintenance and monitoring for a period of 5 years. Each performance bond shall be released upon satisfactory completion of items (a) and (b) above. If the applicant fails to either restore or maintain and monitor according to the approved plans, the Coastal Commission may collect the security and complete the work on the property.

B. Habitat Conservation

Prior to issuance of the Coastal Development Permit, the applicant shall execute and record an open space deed restriction in a form and content acceptable to the Executive Director, over a parcel or parcels containing chaparral ESHA. The chaparral ESHA located on the mitigation parcel or parcels must be of equal or greater area than the ESHA area impacted by the proposed development, including the fuel modification/brush clearance areas. No development, as defined in Section 30106 of the Coastal Act, shall occur on the mitigation parcel(s) and the parcel(s) shall be preserved as permanent open space. The deed restriction shall include a graphic depiction and narrative legal descriptions of the parcel or parcels. The deed restriction

shall run with the land, binding all successors and assigns, and shall be recorded free of prior liens that the Executive Director determines may affect the enforceability of the restriction.

Prior to occupancy of the residence the applicant shall submit evidence, for the review and approval of the Executive Director, that the recorded documents have been reflected in the Los Angeles County Tax Assessor Records.

If the mitigation parcel is larger in size than the impacted habitat area, the excess acreage may be used to provide habitat impact mitigation for other development projects that impact like ESHA.

C. Habitat Impact Mitigation Fund

Prior to the issuance of the Coastal Development Permit, the applicant shall submit evidence, for the review and approval of the Executive Director, that compensatory mitigation, in the form of an in-lieu fee, has been paid to the Santa Monica Mountains Conservancy to mitigate adverse impacts to chaparral habitat ESHA. The fee shall be calculated as follows:

1) Development Area, Irrigated Fuel Modification Zones

The in-lieu fee for these areas shall be \$12,000 per acre within the development area and any required irrigated fuel modification zones. The total acreage shall be based on the map delineating these areas required by this condition.

2) Non-irrigated Fuel Modification Zones

The in-lieu fee for non-irrigated fuel modification areas shall be \$3,000 per acre. The total acreage shall be based on the map delineating these areas required by this condition.

Prior to the payment of any in-lieu fee to the Santa Monica Mountains Conservancy, the applicant shall submit, for the review and approval of the Executive Director, the calculation of the in-lieu fee required to mitigate adverse impacts to chaparral habitat ESHA, in accordance with this condition. After review and approval of the fee calculation, the fee shall be paid to the Santa Monica Mountains Conservancy. The fee shall be used for the acquisition or permanent preservation of chaparral habitat in the Santa Monica Mountains coastal zone.

8. Pool Drainage and Maintenance

By acceptance of this permit, the applicant agrees to install a no chlorine or low chlorine purification system and agrees to properly maintain pool water pH, calcium, and alkalinity balance to ensure any runoff or drainage from the pool or spa will not include excessive amounts of chemicals that may adversely affect water quality or

environmentally sensitive habitat areas. In addition, the applicant agrees not to discharge chlorinated or non-chlorinated pool water into a street, storm drain, creek, canyon drainage channel, or other location where it could enter receiving waters.

9. Lighting Restrictions

- A. The only outdoor night lighting allowed on the subject parcel is limited to the following:
- 1) The minimum necessary to light walkways used for entry and exit to the structures, including parking areas on the site. This lighting shall be limited to fixtures that do not exceed two feet in height above finished grade, are directed downward and generate the same or less lumens equivalent to those generated by a 60 watt incandescent bulb, unless a greater number of lumens is authorized by the Executive Director.
 - 2) Security lighting attached to the residence and garage shall be controlled by motion detectors and is limited to same or less lumens equivalent to those generated by a 60-watt incandescent bulb.
 - 3) The minimum necessary to light the entry area to the driveway with the same or less lumens equivalent to those generated by a 60-watt incandescent bulb.
- B. No lighting around the perimeter of the site and no lighting for aesthetic purposes is allowed.

10. Structural Appearance

Prior to the issuance of the Coastal Development Permit, the applicant shall submit for the review and approval of the Executive Director, a color palette and material specifications for the outer surface of all structures authorized by the approval of coastal development permit 4-04-052. The palette samples shall be presented in a format not to exceed 8 1/2" x 11" in size. The palette shall include the colors proposed for the all of the roofs, trims, exterior surfaces, retaining walls, water tank, or other structures authorized by this permit. Acceptable colors shall be limited to colors compatible with the surrounding environment (earth tones). Including shades of green, brown and gray with no white or light shades, galvanized steel, and no bright tones. All windows shall be comprised of non-glare glass.

The approved structures shall be colored with only the colors and materials authorized pursuant to this special condition. Alternative colors or materials for future repainting, resurfacing, or new windows may only be applied to the structures authorized by Coastal Development Permit 4-04-052 if such changes are specifically authorized by the Executive Director as complying with this special condition.

11. Removal of Excess Excavated Material

Prior to the issuance of the Coastal Development Permit, the applicant shall provide evidence to the Executive Director of the location of the disposal site for all excess excavated material from the site. If the disposal site is located in the Coastal Zone, the disposal site must have a valid coastal development permit for the disposal of fill material. If the disposal site does not have a coastal permit, such a permit will be required prior to the disposal of material.

12. Deed Restriction

Prior to issuance of the Coastal Development Permit, the applicant shall submit to the Executive Director for review and approval documentation demonstrating that the applicant has executed and recorded a deed restriction, in a form and content acceptable to the Executive Director: (1) indicating that, pursuant to these permits, the California Coastal Commission has authorized development on the subject property, subject to terms and conditions that restrict the use and enjoyment of that property (hereinafter referred to as the "Standard and Special Conditions"); and (2) imposing all Standard and Special Conditions of these permits as covenants, conditions and restrictions on the use and enjoyment of the Property. The deed restriction shall include a legal description of the applicant's entire parcel or parcels. The deed restriction shall also indicate that, in the event of an extinguishment or termination of the deed restriction for any reason, the terms and conditions of this permit shall continue to restrict the use and enjoyment of the subject property so long as either this permit or the development it authorizes, or any part, modification, or amendment thereof, remains in existence on or with respect to the subject property.

13. Open Space Deed Restriction

No development, as defined in Section 30106 of the Coastal Act, grazing, or agricultural activities shall occur outside of the approved development area as shown in Exhibit 8 except for:

- a. Fuel modification required by the Los Angeles county Fire Department undertaken in accordance with the final approved fuel modification plan required by Special Condition Three (3) and included in Exhibit 4;
- b. Drainage and polluted runoff control activities pursuant to Special Condition Two (2) and Special Condition Three (3);
- c. Planting of native vegetation and other restoration activities, if approved by the Commission as an amendment to this coastal development permit or a new coastal development permit;
- d. Construction and maintenance of public hiking trails, if approved by the Commission as an amendment to this coastal development permit or a new coastal development permit;
- e. Existing easements for roads, trails, and utilities; and

- f. Remediation of landslides, surficial failures, or other geologic hazards as approved by this coastal development permit, an amendment to this coastal development permit, or a new coastal development permit.

Prior to issuance of the Coastal Development Permit, the applicant shall execute and record a deed restriction in a form and content acceptable to the Executive Director, reflecting the above restriction on development in the designated open space. The deed restriction shall include legal descriptions of both the applicant's entire parcel and the open space area, prepared by a licensed surveyor. The deed restriction shall run with the land, binding all successors and assigns, and shall be recorded free of prior liens that the Executive Director determines may affect the enforceability of the restriction. This deed restriction shall not be removed or changed without a Commission amendment to this coastal development permit.

IV. Findings and Declarations

The Commission hereby finds and declares:

A. Project Description and Background

The applicant proposes to construct a 5,007 sq. ft., 35 ft. high, three story, single-family residence (**Exhibits 3 and 6**). The first floor includes an attached 600 sq. ft., two-car garage. The proposed project will include a pool, spa, pool shed, 5,000 gallon water tank, septic system, retaining walls; access driveway; and 2,329 cu. yds of grading (1,899 cu. yds. cut; 430 cu. yds. fill; 1,469 cu. yds export). Geologic conditions onsite also require 200 cu. yds of remedial grading (all cut and export) to remove a debris flow in the vicinity of the proposed access road. The applicant has also included in this coastal development permit application, a request for after the fact approval of an unpermitted water well that was installed on the property in 1989. The total development area for the project, not counting the driveway and turnaround, will be approximately 6,454 sq. ft.

The project site is a 6.91-acre hillside lot located in the north-central part of the Santa Monica Mountains, just south of the community of Monte Nido in Los Angeles County (**Exhibit 1**). The lot is located in the middle of a large turn on Piuma Road. Piuma Road, therefore, is adjacent to the property to the north and is also slightly above the property to the south. The lot is just over 3 miles inland from the sea and is visible from Piuma Road, State park lands, and the Monte Nido subdivision 0.5 miles north of the lot. The areas surrounding the subject parcel are characterized by undeveloped hillside terrain with chaparral vegetation. Two residences have been approved on private lots directly north and east of the subject lot, while the California Mountains Recreation Conservation Authority owns the land directly south and west of the lot. The property is located in the Cold Creek Resource Management Area, as designated in the 1986 certified Malibu/Santa Monica Mountains Land Use Plan prepared by Los Angeles County. According to the land use plan, developments in the management area can

include residential uses limited to one residence per parcel and subject to standards and specifications dictated by the Los Angeles County Environmental Review Board.

The property contains moderately steep, north sloping hillside terrain primarily covered in chaparral vegetation typical to the Santa Monica Mountains¹. An upland drainage or arroyo flows through the eastern portion of the property, just east of the proposed driveway. The Commission notes that field investigations performed by the applicant's biologist and a field visit by Commission staff in March 2005 found the arroyo to lack features such as cut banks and bed material indicative of established blue line creeks and streams commonly found in lower watershed areas of the Santa Monica Mountains. Additionally, no wetland or riparian habitat appears to be associated with the drainage.

Approximately 5,000 square feet of the lot has been graded and cleared into a dozer trail that extends 300 feet from Piuma Road in an east-west direction through the northerly side of the lot. The trail is approximately 20 to 40 feet wide (**Exhibits 2 and 7**). According to the applicant, the trail was created at the time of grading and construction of Piuma Road about 45 years ago. The Commission notes that aerial photographs dated from 1977 of the site show the dozer trail. As such, staff concludes that this area was first disturbed prior to the effective date of the Coastal Act. The Commission also notes that just prior to the March, 2005 site visit a large landslide occurred from Piuma Road into the subject lot, removing large areas of chaparral and depositing soil and debris onto the upland drainage, water well, and a portion of the proposed driveway.

The proposed driveway, turnaround, pool, patio, spa, and a portion of the residence will be located within the previously disturbed dozer trail on the site. The remainder of the residence, retaining walls, and water storage tank will be stepped into the chaparral vegetated hillside south of the dozer trail. Preliminary fuel modification plans (**Exhibit 4**) for the residence submitted by the applicant and approved by the Los Angeles Fire Department, require removal of chaparral vegetation up to 200 feet from the residence in most areas, with reductions in some areas to avoid modification of any vegetation outside of the subject lot and on public lands. No removal of live vegetation is planned near the drainage on the east side of the lot.

The subject lot was created by deed as part of an unpermitted subdivision. The subdivision was not properly permitted pursuant to the requirements of the Subdivision Map Act of 1972 and Los Angeles County Planning and Zoning codes. In 1987 the County of Los Angeles issued Conditional Certificate of Compliance (COC) number 9686 to "legalize" the lot pursuant to the Subdivision Map Act. All conditions were met on this COC as of July 26, 2002. The COC, which legalized this lot pursuant to the Subdivision Map Act, is considered a form of subdivision and, therefore, required a coastal development permit. The landowner at the time failed to secure coastal development permits for the COC. A second COC was issued for a lot line adjustment on the lot (Certificate of Compliance 100,826 recorded as instrument number 90-

¹ ENSR International. Biological Survey, 25155 Piuma Road, Malibu, CA. August 2, 2004.

032881 on January 8, 1990). On March 14, 1991 the Commission approved coastal development permit 5-90-314 for construction of a single-family home at 25195 Piuma Road, which directly neighbors the subject lot to the north. This permit included after the fact approval of the lot line adjustment described in COC 100,826, which resulted in the expansion of parcel 4456-013-054 located at 25195 Piuma Road and reduction of parcel 4456-013-052, the subject lot located at 25155 Piuma Road. Approval of CDP 5-90-314 effectively permitted the legalization of the subject lot.

B. Geologic and Wildfire Hazard

The proposed development is located in the Santa Monica Mountains area, an area that is generally considered to be subject to an unusually high amount of natural hazards. Geologic hazards common to the Santa Monica Mountains area include landslides, erosion, and flooding. In addition, fire is an inherent threat to the indigenous chaparral community of the coastal mountains. Wild fires often denude hillsides in the Santa Monica Mountains of all existing vegetation, thereby contributing to an increased potential for erosion and landslides on property.

Section 30253 of the Coastal Act states in pertinent part that new development shall:

- (1) Minimize risks to life and property in areas of high geologic, flood, and fire hazard.***
- (2) Assure stability and structural integrity, and neither create nor contribute significantly to erosion, instability, or destruction of the site or surrounding area or in any way require the construction of protective devices that would substantially alter natural landforms along bluffs and cliffs.***

Geology

Section 30253 of the Coastal Act mandates that new development be sited and designed to provide geologic stability and structural integrity, and minimize risks to life and property in areas of high geologic, flood, and fire hazard. The applicant has submitted the "Geologic/Geotechnical Engineering Report" and "Percolation Test Results and Septic System Design Report" prepared by Gold Coast Geoservices in August 2003 for the subject property. These reports address the geologic conditions on the site, including drainage, subsurface conditions, groundwater, landslides, faulting, and seismicity.

The subject property is a hillside lot with steep north sloping terrain underlain by volcanic bedrock. Slopes on the property vary, with typical horizontal to vertical slope ratios of about 2:1. Drainage on the site is generally by sheet flow runoff to Piuma Road along the north side of the property. A northerly trending ephemeral drainage traverses the easterly side of the property in the area of the access driveway entry at Piuma Road. During winter rainstorms in February 2005, a debris flow originating at the

top of the hillside above the property slid down a ravine and deposited mud onto the northeasterly side of the property in the vicinity of the proposed access driveway and drainage. According to the geotechnical consultant, the debris flow was partially caused by poor drainage control along Piuma Road south of the property.

The geologic consultant has found the geology of the proposed project site to be suitable for the construction of the proposed residence. The geotechnical engineering consultant concluded in the August 12, 2003 Geologic/Geotechnical Engineering Report that:

It is the opinion of the undersigned that the proposed grading and construction will be safe against hazard from landslide, settlement, or slippage, and that the proposed construction will have no adverse geological effect on offsite properties.

Following the debris flow on the property in February 2005, Gold Coast Geoservices, Inc. submitted an addendum to this geotechnical. In this addendum dated March 31, 2005 the consultant states:

The potential for future debris flows from this area is actually reduced by the fact of the occurrence of the debris flow event, however a low potential remains for debris flows from this area...It is our finding that the debris flow at the east-northeast side of the property does not impact the safety or stability of the proposed grading and construction of a single family residence. The residence is to be constructed on the hilltop building site that is safely removed from the debris flow source area.

The consultant concludes in both the main report and addendum that the proposed development is feasible and will be free from geologic hazard provided their recommendations are incorporated in the proposed development. The geotechnical reports contain several recommendations to be incorporated into project grading, construction, drainage, foundations, and sewage disposal to ensure the stability and geologic safety of the proposed project site and adjacent property.

In order to ensure that the recommendations of the geologic consultant have been incorporated into all proposed development, the Commission, as specified in **Special Condition One (1)**, requires the applicant to incorporate the recommendations cited in the Geotechnical Report into all final design and construction plans. Final plans approved by the consultant shall be in substantial conformance with the plans approved by the Commission. Any substantial changes to the proposed developments, as approved by the Commission, which may be recommended by the consultant, shall require an amendment to the permit or a new coastal development permit.

The Commission finds that controlling and diverting run-off in a non-erosive manner from the proposed structures, impervious surfaces, and building pad will also add to the geologic stability of the project site. Therefore, in order to minimize erosion and ensure

stability of the project site, and to ensure that adequate drainage and erosion control is included in the proposed development, the Commission requires the applicants to submit drainage and erosion control plans certified by the geotechnical engineer, as specified in **Special Conditions Two (2) and Three (3)**.

Further, the Commission finds that landscaping of graded and disturbed areas on the subject site will serve to stabilize disturbed soils, reduce erosion and thus enhance and maintain the geologic stability of the site. Therefore, **Special Condition Three (3)** requires the applicant to submit landscaping plans certified by the consulting geotechnical engineer as in conformance with their recommendations for landscaping of the project site. **Special Condition Three (3)** also requires the applicant to utilize and maintain native and noninvasive plant species compatible with the surrounding area for landscaping the project site.

Invasive and non-native plant species are generally characterized as having a shallow root structure in comparison with their high surface/foilage weight. The Commission notes that non-native and invasive plant species with high surface/foilage weight and shallow root structures do not serve to stabilize slopes and that such vegetation results in potential adverse effects to the stability of the project site. Native species, alternatively, tend to have a deeper root structure than non-native and invasive species, and once established aid in preventing erosion. Therefore, the Commission finds that in order to ensure site stability, all slopes and disturbed and graded areas of the site shall be landscaped with appropriate native plant species, as specified in **Special Condition Three (3)**.

In addition, to ensure that excess excavated material is moved off site so as not to contribute to unnecessary landform alternation and to minimize erosion and sedimentation from stockpiled excavated soil, the Commission finds it necessary to require the applicant to dispose of the material at an appropriate disposal site or to a site that has been approved to accept fill material, as specified in **Special Condition Eleven (11)**.

Furthermore, in order to ensure that vegetation clearance for fire protection purposes does not occur prior to commencement of grading or construction of the proposed structures, the Commission finds that it is necessary to impose a restriction on the removal of natural vegetation as specified in **Special Condition Five (5)**. This restriction specifies that natural vegetation shall not be removed until grading or building permits have been secured and construction of the permitted structures has commenced. The limitation imposed by **Special Condition Five (5)** avoids loss of natural vegetative coverage resulting in unnecessary erosion in the absence of adequately constructed drainage and run-off control devices and implementation of the landscape and interim erosion control plans.

The Commission notes that because there remains some inherent risk in building adjacent to potential landslides, which exist near the subject site, the Commission can only approve the project if the applicant assumes the liability from the associated risks

as required by **Special Condition Four (4)**. The assumption of risk will show that the applicant is aware of and appreciates the nature of the hazards which exist on the site and which may adversely affect the stability or safety of the proposed development and agrees to assume any liability for the same.

Special Condition Twelve (12) requires the applicant to record a deed restriction that imposes the terms and conditions of this permit as restriction on use and enjoyment of the property and provides any prospective purchaser of the site with recorded notice that the restriction are imposed on the subject property.

The Commission finds that the proposed project, as conditioned, will serve to minimize potential geologic hazards of the project site and adjacent properties, as outlined in §30253 of the Coastal Act

Wildfire

The proposed project is located in the Santa Monica Mountains, an area subject to an extraordinary potential for damage or destruction from wildfire. Typical vegetation in the Santa Monica Mountains consists mostly of coastal sage scrub and chaparral. Many plant species common to these communities produce and store terpenes, which are highly flammable substances (Mooney in Barbour, *Terrestrial Vegetation of California*, 1988). Chaparral and sage scrub communities have evolved in concert with, and continue to produce the potential for, frequent wildfires. The typical warm, dry summer conditions of the Mediterranean climate combine with the natural characteristics of the native vegetation to pose a risk of wild fire damage to development that cannot be completely avoided or mitigated.

Due to the fact that the proposed project is located in an area subject to an extraordinary potential for damage or destruction from wildfire, the Commission can only approve the project if the applicant assumes the liability from these associated risks. Through **Special Condition Four (4)**, the applicant acknowledges the nature of the fire hazard which exists on the site and which may affect the safety of the proposed development. Moreover, through acceptance of **Special Condition Four (4)**, the applicant also agrees to indemnify the Commission, its officers, agents and employees against any and all expenses or liability arising out of the acquisition, design, construction, operation, maintenance, existence, or failure of the permitted project.

For the reasons set forth above, the Commission finds that, as conditioned, the proposed project is consistent with §30253 of the Coastal Act

C. Environmentally Sensitive Habitat Areas

Section 30230 of the Coastal Act states that:

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 states:

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 30240 states:

- (a) Environmentally sensitive habitat areas shall be protected against any significant disruption of habitat values, and only uses dependent on such resources shall be allowed within such 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 such areas, and shall be compatible with the continuance of such habitat 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 require that the biological productivity and the quality of coastal waters and streams 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. In addition, Sections 30107.5 and 30240 of the Coastal Act state that environmentally sensitive habitat areas must be protected against disruption of habitat values. Therefore, 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 or especially valuable?
- 2) Does the habitat or species have a 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, coastal sage scrub and chaparral have many important roles in the ecosystem, including the provision of critical linkages between riparian corridors, the provision of essential habitat for species that require several habitat types during the course of their life histories, the provision of essential habitat for local endemics, the support of rare species, and the reduction of erosion, thereby protecting the water quality of coastal streams. For these and other reasons discussed in **Exhibit 9**, which is incorporated herein, the Commission finds that large contiguous, relatively pristine stands of coastal sage scrub and chaparral in the Santa Monica Mountains meet the definition of ESHA. This is consistent with the Commission's past findings on the Malibu LCP².

For any specific property within the Santa Monica Mountains, it is necessary to meet three tests in order to assign the ESHA designation. First, is the habitat properly identified, for example as coastal sage scrub or chaparral? Second, is the habitat undeveloped and otherwise relatively pristine? Third, is the habitat part of a large, contiguous block of relatively pristine native vegetation?

The subject site is a 6.91-acre hillside lot located in the Malibu/Cold Creek Management Area as designated by Los Angeles County in the 1986 Malibu/Santa Monica Mountains Land Use Plan. The applicant has submitted a biological study, dated August 2, 2004, prepared by ENSR that describes the site as generally vegetated with native chaparral typical of the Santa Monica Mountains. No wetland or riparian habitat is present on the site. The upland ephemeral arroyo on the east side of the lot does not contain cut banks or bed material, is partially covered with chaparral vegetation, and appears to be a small drainage characteristic of upper watersheds in the Santa Monica Mountains.

The chaparral onsite is undisturbed with the exception of a 20 to 40 foot wide and approximately 300 foot long graded dozer trail on the north side of the property

² Revised Findings for the City of Malibu Local Coastal Program (as adopted on September 13, 2002) adopted on February 6, 2003.

adjacent to Piuma Road (**Exhibit 7**). This dozer trail appears to have been created prior to 1976, and is the proposed site for access driveway, turnaround, patio, pool, spa, and a portion of the residence. Surrounding the parcel, are large areas of undisturbed chaparral extending to the west and south into lands owned by the State of California Mountains Recreation Conservation Authority. North and east of the property sparsely developed private parcels are generally vegetated with chaparral and coastal sage scrub species.

Due to the important ecosystem role of chaparral in the Santa Monica Mountains (detailed in **Exhibit 9**), and the fact that the subject parcel is relatively undisturbed, with the exception of the existing dozer trail, and part of a large, unfragmented block of habitat, the Commission finds that the chaparral habitat on and surrounding the subject site meets the definition of ESHA under the Coastal Act.

As explained above, the project site and the surrounding area (excluding the dozer trail that was graded prior to the effective date of the Coastal Act) constitute an environmentally sensitive habitat area (ESHA) pursuant to Section 30107.5. Section 30240 requires that "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." Section 30240 restricts development on the parcel to only those uses that are dependent on the resource. The applicant proposes to construct a single-family residence on the parcel. The majority of the development is proposed to be located on the existing dozer trail that was graded prior to the Coastal Act, and which does not support ESHA. However, the construction of the residence in that location will still require the removal of chaparral ESHA as a result of construction of the residence, installation of a 5,000-gallon water tank, and fuel modification for fire protection purposes. As single-family residences do not have to be located within ESHAs to function, the Commission does not consider single-family residences to be a use dependent on ESHA resources. Application of Section 30240, by itself, would require denial of the project, because the project would result in significant disruption of habitat values and is not a use dependent on those sensitive habitat resources.

However, the Commission must also consider Section 30010, and the Supreme Court decision in *Lucas v. South Carolina Coastal Council* (1992) 505 U.S. 1003, 112 S.Ct. 2886. Section 30010 of the Coastal Act provides that the Coastal Act shall not be construed as authorizing the Commission to exercise its power to grant or deny a permit in a manner which will take private property for public use. Application of Section 30010 may overcome the presumption of denial in some instances. The subject of what government action results in a "taking" was addressed by the U.S. Supreme Court in *Lucas v. South Carolina Coastal Council*. In *Lucas*, the Court identified several factors that should be considered in determining whether a proposed government action would result in a taking. For instance, the Court held that where a permit applicant has demonstrated that he or she has a sufficient real property interest in the property to allow the proposed project, and that project denial would deprive his or her property of all economically viable use, then denial of the project by a regulatory agency

might result in a taking of the property for public use unless the proposed project would constitute a nuisance under State law. Another factor that should be considered is the extent to which a project denial would interfere with reasonable investment-backed expectations.

The Commission interprets Section 30010, together with the *Lucas* decision, to mean that if Commission denial of the project would deprive an applicant's property of all reasonable economic use, the Commission may be required to allow some development even where a Coastal Act policy would otherwise prohibit it, unless the proposed project would constitute a nuisance under state law. In other words, Section 30240 of the Coastal Act cannot be read to deny all economically beneficial or productive use of land because Section 30240 cannot be interpreted to require the Commission to act in an unconstitutional manner.

In the subject case, the applicant purchased the property in February of 2002 for approximately \$150,000. The parcel was designated in the County's certified Land Use Plan in 1986 for residential use (both Rural Land I and Mountain Land, which allow residential development at a maximum density of one dwelling unit per 10 acres and one dwelling unit per 20 acres respectively). The 1986 Land Use Plan also designates the parcel as being within the Cold Creek Management Area. Residential uses at a maximum density of one unit per parcel are allowed in this overlay zone and are subject to specifications and standards developed by the Los Angeles County Environmental Review Board. At the time the applicant purchased the parcel, the County's certified Land Use Plan did not designate the vegetation on the site as ESHA. Based on this fact, along with the presence of existing and approved residential development on nearby parcels, the applicant had reason to believe that they had purchased a parcel on which they would be able to build a residence.

The Commission finds that in this particular case, other allowable uses for the subject site, such as a recreational park or a nature preserve, are not feasible and would not provide the owner an economic return on the investment. The parcel is 6.91 acres and there are other, scattered residential developments to the north and east of the site. Public parkland and open space has been acquired in the vicinity (lands owned by the State of California Mountain Recreation Conservation Authority border the site), but there is currently not an offer to purchase the property from any public park agency. The Commission thus concludes that in this particular case there is no viable alternative use for the site other than residential development. The Commission finds, therefore, that outright denial of all residential use would interfere with reasonable investment-backed expectations and deprive the property of all reasonable economic use.

Next the Commission turns to the question of nuisance. There is no evidence that construction of a residence would create a nuisance under California law. Other houses have been constructed in similar situations in chaparral habitat in Los Angeles County, apparently without the creation of nuisances. The County's Health Department has not reported evidence of septic system failures. In addition, the County has reviewed and approved the applicant's proposed septic system, ensuring that the

system will not create public health problems. Furthermore, the use that is proposed is residential, rather than, for example, industrial, which might create noise or odors or otherwise create a public nuisance. In conclusion, the Commission finds that a residential project can be allowed to permit the applicant a reasonable economic use of their property consistent with Section 30010 of the Coastal Act.

While the applicant is entitled under Section 30010 to an assurance that the Commission will not act in such a way as to take their property, this section does not authorize the Commission to avoid application of the policies of the Coastal Act, including Section 30240, altogether. Instead, the Commission is only directed to avoid construing these policies in a way that would take property. Aside from this instruction, the Commission is still otherwise directed to enforce the requirements of the Act. Therefore, in this situation, the Commission must still comply with Section 30240 by avoiding impacts that would disrupt and/or degrade environmentally sensitive habitat, to the extent this can be done without taking the property.

As discussed above, the proposed development will be approved within ESHA in order to provide an economically viable use. Siting and design alternatives have been considered in order to identify the alternative that can avoid and minimize impacts to ESHA to the maximum extent feasible. In this case, steep terrain and the location of several ravines and drainages onsite, limit the potential locations for siting of a residence. The proposed building site is a 40-foot wide section of the existing dozer trail that is 100 feet away from a nearby upland drainage. Any feasible alternative location on the site for a residence would include additional grading and the removal of more native vegetation.

The required access road and fire department turnaround for the residence will be located on the existing dozer trail not considered ESHA. Due to limited space next to the turnaround area on the dozer trail, a portion of the residence will be sited onto hillside currently vegetated with native chaparral ESHA. The residence and associated retaining walls, in order to minimize grading and total disturbed area, will be stepped into the hillside. Additionally, the garage is incorporated into the main residence, thereby minimizing the total fuel modification area necessary for the project. A 5,000-gallon water tank is also proposed on the hillside behind the house within the area outlined in the approved fuel modification plan to be completely cleared of vegetation (Zone A). The applicant, in response to staff recommendations, has also located the proposed pool, pool shed, spa, and patio on a thin remaining portion of the existing dozer trail west of the residence outside of areas considered ESHA. The Commission notes that all modifications to the project suggested by the Los Angeles Environmental Review Board in their review of the project have also been incorporated into the current project plans.

In past permit actions, the Commission has limited development within or adjacent to chaparral ESHA to a 10,000 sq. ft. development area, excluding driveways and fire turn around areas. In this case, not including the area of the driveway and turnaround, or the proposed septic system, the proposed development area for the residence and

associated improvements is approximately 6,454 sq. ft. This conforms to the maximum development area of 10,000 sq. ft. that the Commission has typically allowed in similar situations on sites containing ESHA. However, given the location of ESHA on the site, there will still be significant impacts to ESHA resulting from construction of the residence and the required fuel modification area around the approved structure. The following discussion of ESHA impacts from new development and fuel modification is based on the findings of the Malibu LCP³.

Fuel modification is the removal or modification of combustible native or ornamental vegetation. It may include replacement with drought tolerant, fire resistant plants. The amount and location of required fuel modification would vary according to the fire history of the area, the amount and type of plant species on the site, topography, weather patterns, construction design, and siting of structures. There are typically three fuel modification zones applied by the Fire Department:

Zone A (Setback Zone) is required to be a minimum of 20 feet beyond the edge of protected structures. In this area native vegetation is cleared and only ground cover, green lawn, and a limited number of ornamental plant species are allowed. This zone must be irrigated to maintain a high moisture content.

Zone B (Irrigated Zone) is required to extend from the outermost edge of Zone A to a maximum of 80 feet. In this area ground covers may not extend over 18 inches in height. Some native vegetation may remain in this zone if they are adequately spaced, maintained free of dead wood and individual plants are thinned. This zone must be irrigated to maintain a high moisture content.

Zone C (Thinning Zone) is required to extend from the outermost edge of Zone B up to 100 feet. This zone would primarily retain existing native vegetation, with the exception of high fuel species such as chamise, red shank, California sagebrush, common buckwheat and sage. Dead or dying vegetation must be removed and the fuel in existing vegetation reduced by thinning individual plants.

Thus, the combined required fuel modification area around structures can extend up to a maximum of 200 feet. If there is not adequate area on the project site to provide the required fuel modification for structures, then brush clearance may also be required on adjacent parcels.

Notwithstanding the need to protect structures from the risk of wildfire, fuel modification results in significant adverse impacts that are in excess of those directly related to the development itself. Within the area next to approved structures (Zone A), all native vegetation must be removed and ornamental, low-fuel plants substituted. In Zone B, most native vegetation will be removed or widely spaced. Finally, in Zone C, native vegetation may be retained if thinned, although particular high-fuel plant species must be removed (Several of the high fuel species are important components of the coastal

³ Revised Findings for the City of Malibu Local Coastal Program (as adopted on September 13, 2002) adopted on February 6, 2003.

sage scrub community). In this way, for a large area around any permitted structures, native vegetation will be cleared, selectively removed to provide wider spacing, and thinned.

Obviously, native vegetation that is cleared and replaced with ornamental species, or substantially removed and widely spaced will be lost as habitat and watershed cover. Additionally, thinned areas will be greatly reduced in habitat value. Even where complete clearance of vegetation is not required, the natural habitat can be significantly impacted, and ultimately lost. For instance, in coastal sage scrub and chaparral habitat, the natural soil coverage of the canopies of individual plants provides shading and reduced soil temperatures. When these plants are thinned, the microclimate of the area will be affected, increasing soil temperatures, which can lead to loss of individual plants and the eventual conversion of the area to a dominance of different non-native plant species. The areas created by thinning between shrubs can be invaded by non-native grasses that will over time out-compete native species.

For example, undisturbed coastal sage scrub and chaparral vegetation typical of coastal canyon slopes, and the downslope riparian corridors of the canyon bottoms, ordinarily contains a variety of tree and shrub species with established root systems. Depending on the canopy coverage, these species may be accompanied by understory species of lower profile. The established vegetative cover, including the leaf detritus and other mulch contributed by the native plants, slows rainfall runoff from canyon slopes and staunches silt flows that result from ordinary erosional processes. The native vegetation thereby limits the intrusion of sediments into downslope creeks. Accordingly, disturbed slopes where vegetation is either cleared or thinned are more directly exposed to rainfall runoff that can therefore wash canyon soils into down-gradient creeks. The resultant erosion reduces topsoil and steepens slopes, making revegetation increasingly difficult or creating ideal conditions for colonization by invasive, non-native species that supplant the native populations.

The cumulative loss of habitat cover also reduces the value of the sensitive resource areas as a refuge for birds and animals, for example by making them—or their nests and burrows—more readily apparent to predators. 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 (mourning dove, American crow, Western scrub-jay, Northern mockingbird)⁴. 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

⁴ 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.

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 chaparral⁵.

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 area⁶. The Argentine ant competes with native harvester ants and carpenter ants displacing them from the habitat⁷. 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 developments⁸. 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 mutualisms⁹. 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 predator species are seen and more exotic arthropod species are present than in undisturbed habitats¹⁰.

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.¹¹ 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

⁵ 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.

⁶ 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.

⁷ 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.

⁸ 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.

⁹ 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.

¹⁰ Longcore, T.R. 1999. Terrestrial arthropods as indicators of restoration success in coastal sage scrub. Ph.D. Dissertation, University of California, Los Angeles.

¹¹ Christian, C. 2001. Consequences of a biological invasion reveal the importance of mutualism for plant communities. *Nature* 413:635-639.

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 seeds¹².

While these impacts resulting from fuel modification can be reduced through siting and design alternatives for new development, they cannot be completely avoided, given the high fire risk and the extent of ESHA on the site. The Commission finds that the loss of chaparral ESHA resulting from the removal, conversion, or modification of natural habitat for new development including fuel modification and brush clearance must be mitigated. The acreage of habitat that is impacted must be determined based on the size of the required fuel modification zone.

In this case, the applicant's fuel modification plan (approved by the Los Angeles County Fire Department) shows the use of the standard three zones of vegetation modification, with adjustments made due to the proximity of neighboring parkland and drainages. Zones "A" (setback zone) and "B" (irrigation zone) are shown in a radius extending approximately 100 feet from the proposed structures. A "C" Zone (thinning zone) is provided for a distance of 100 feet beyond the "A" and "B" zones or to the property line, whichever is located closer. Brush clearance will, therefore, extend 100 feet north, 150 feet south, and 200 feet east and west of the residence. No fuel modification will occur on adjacent property. Fuel modification will be limited only to removal of dead wood near the arroyo on the east end of the property.

The ESHA area affected by the proposed development does not include the existing disturbed dozer trail since that area was previously graded and denuded of ESHA prior to the effective date of the Coastal Act. As such, the ESHA areas that will be impacted by the proposed project include a portion of the proposed residence and fuel modification and brush clearance areas on the slopes beyond the edges of the disturbed area. The precise area of ESHA that will be impacted by the proposed development has not been calculated. Therefore, the Commission finds that it is necessary to require the applicant to delineate the ESHA both on and offsite that will be impacted by the proposed development including the areas affected by fuel modification and brushing activities, as required by **Special Condition Seven (7)**.

The Commission has identified three methods for providing mitigation for the unavoidable loss of ESHA resulting from development, including habitat restoration, habitat conservation, and an in-lieu fee for habitat conservation. The Commission finds that these measures are appropriate in this case to mitigate the loss of chaparral habitat on and offsite. These three mitigation methods are provided as three available options for compliance with **Special Condition Seven (7)**. The first method is to provide mitigation through the restoration of an area of degraded habitat (either on the project site, or at an off-site location) that is equivalent in size to the area of habitat impacted by the development. A restoration plan must be prepared by a biologist or qualified resource specialist and must provide performance standards, and provisions for maintenance and monitoring. The restored habitat must be permanently preserved

¹² 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.

through the recordation of an open space easement. This mitigation method is provided for in **Special Condition Seven (7), subpart A.**

The second habitat impact mitigation method is habitat conservation. This includes the conservation of an area of intact habitat equivalent to the area of the impacted habitat. The parcel containing the habitat conservation area must be restricted from future development and permanently preserved. If the mitigation parcel is larger in size than the impacted habitat area, the excess acreage could be used to provide habitat impact mitigation for other development projects that impact ESHA. This mitigation method is provided for in **Special Condition Seven (7), subpart B.**

The third habitat impact mitigation option is an in-lieu fee for habitat conservation as provided for in **Special Condition Seven (7), subpart C.** The fee is based on the habitat types in question, the cost per acre to restore or create the comparable habitat types, and the acreage of habitat affected by the project. In order to determine an appropriate fee for the restoration or creation of chaparral and coastal sage scrub habitat, the Commission's biologist contacted several consulting companies that have considerable experience carrying out restoration projects. Overall estimates varied widely among the companies, because of differences in the strategies employed in planning the restoration (for instance, determining the appropriate number of plants or amount of seeds used per acre) as well as whether all of the restoration planting, monitoring and maintenance was carried out by the consultant or portions are subcontracted. Additionally, the range of cost estimates reflect differences in restoration site characteristics including topography (steeper is harder), proximity to the coast (minimal or no irrigation required at coastal sites), types of plants (some plants are rare or difficult to cultivate), density of planting, severity of weed problem, condition of soil, etc. Larger projects may realize some economy of scale.

Staff has determined that the appropriate mitigation for loss of coastal sage scrub or chaparral ESHA should be based on the actual installation of replacement plantings on a disturbed site, including the cost of acquiring the plants (seed mix and container stock) and installing them on the site (hydroseeding and planting). Three cost estimates were obtained for the installation of plants and seeds for one-acre of restoration. These estimates were \$9,541, \$12,820, and \$13,907 per acre of plant installation. The Commission finds it appropriate to average the three estimates of plant installation to arrive at the reasonable in-lieu fee to mitigate for the loss of ESHA associated with the approval of development within an ESHA. Based on this averaging, the required in-lieu fee for habitat mitigation is \$12,000 (rounded down from the average figure of \$12,089 to simplify administration) per acre of habitat.

The Commission finds that the in-lieu fee of \$12,000 per acre is appropriate to provide mitigation for the habitat impacts to ESHA areas where all native vegetation will be removed (building site and the "A" zone required for fuel modification), and where vegetation will be significantly removed and any remaining vegetation will be subjected to supplemental irrigation (the "B" zone or any other irrigated zone required for fuel modification). In these areas, complete removal or significant removal of ESHA, along

with irrigation completely alters the habitat and eliminates its value to the native plant and animal community.

ESHA modified for the "C" zone that is thinned but non-irrigated (required for fuel modification) is certainly diminished in habitat value, but unlike the building site, "A" zone, "B" zone, and any other irrigated zone, habitat values are not completely destroyed. Native vegetation in the "C" zone is typically required to be thinned, and shrubs must be maintained at a certain size to minimize the spread of fire between the individual plants. This area is not typically required to be irrigated. As such, the Commission finds that it is not appropriate to require the same level of in-lieu fee mitigation for impacts to ESHA within a non-irrigated "C" zone required for fuel modification. Although the habitat value in the "C" zone (or any other non-irrigated zone) is greatly reduced, it is not possible to precisely quantify the reduction. The Commission's biologist believes that the habitat value of non-irrigated fuel modification zones is reduced by at least 25 percent (and possibly more) due to the direct loss of vegetation, the increased risk of weed invasion, and the proximity of disturbance. The Commission finds that it is also less costly difficult to restore chaparral habitat when some of the native vegetation remains, rather than when all of the native habitat is removed. Because of the uncertainty and the inability to precisely quantify the reduction in habitat value, the Commission concludes that it is warranted to impose a mitigation fee of \$3,000 per acre (one quarter of the cost of full restoration) for the "C" zone or other non-irrigated fuel modification zone.

In this case, the applicant's approved fuel modification plan shows the use of the standard three zones of vegetation modification. Zones "A" (setback zone) and "B" (irrigation zone) are shown extending in a radius of approximately 100 feet from the proposed structures. A "C" Zone (thinning zone) is provided for a distance of 100 feet beyond the "A" and "B" zones, or to the property line, whichever is located closer. Brush clearance will not be required on adjacent properties or at the arroyo onsite. As discussed above, the ESHA area affected by the proposed development does not include the disturbed area or access road since those areas were previously denuded of ESHA prior to the effective date of the Coastal Act. As such, the ESHA areas that will be impacted by the proposed project are the required fuel modification and brush clearance areas on the slopes beyond the edges of the graded dozer trail and a portion of the proposed residence. The appropriate in-lieu fee calculation would then be based on \$12,000 per acre for any irrigated fuel modification area (the "A" and "B" Zones) or building area and \$3,000 per acre of un-irrigated fuel modification area (zone "C") or brush clearance area.

Should the applicant choose the in-lieu fee mitigation method, the fee shall be provided to the Mountains Recreation and Conservation Authority for the acquisition or permanent preservation of natural habitat areas within the coastal zone. This mitigation method is provided for in **Special Condition Seven (7), subpart C**.

The Commission has determined that in conjunction with siting new development 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 residential landscaping 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 result from the direct occupation or displacement of native plant communities by new development and associated non-native landscaping. 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 new development. The Commission notes that the use of exotic plant species for residential landscaping has already resulted in significant adverse effects to native plant communities in the Malibu/Santa Monica Mountains area. Therefore, in order to minimize adverse effects to the indigenous plant communities of the Malibu/Santa Monica Mountains area, **Special Condition Three (3)** requires that all landscaping consist primarily of native plant species and that invasive plant species shall not be used.

The Commission notes that the use of rodenticides containing anticoagulant compounds have been linked to the death of sensitive predator species, including mountain lions and raptors, in the Santa Monica Mountains. These species are a key component of chaparral and coastal sage scrub communities in the Santa Monica Mountains considered ESHA. Therefore, in order to avoid adverse impacts to sensitive predator species, **Special Condition Three (3)**, disallows the use of rodenticides containing any anticoagulant compounds on the subject property.

Furthermore, in order to ensure that vegetation clearance for fire protection purposes does not occur prior to commencement of grading or construction of the proposed structures, the Commission finds that it is necessary to impose a restriction on the removal of natural vegetation as specified in **Special Condition Five (5)**. This restriction specifies that natural vegetation shall not be removed until grading or building permits have been secured and construction of the permitted structures has commenced. The limitation imposed by Special Condition Five (5) avoids loss of natural vegetative coverage resulting in unnecessary erosion in the absence of adequately constructed drainage and run-off control devices and implementation of the landscape and interim erosion control plans.

The Commission notes that streams and drainages, such as the unnamed blue line stream located downslope of the subject lot, provide important habitat for riparian plant and animal species. Section 30231 of the Coastal Act provides that the quality of coastal waters and streams shall be maintained and restored whenever feasible through means such as: controlling runoff, preventing interference with surface water flows and alteration of natural streams, and by maintaining natural vegetation buffer areas. In past permit actions the Commission has found that new development adjacent to or upslope of coastal streams and natural drainages results in potential adverse impacts to riparian habitat and marine resources from increased erosion, contaminated storm runoff, introduction of non-native and invasive plant species, disturbance of wildlife, and loss of riparian plant and animal habitat.

The Commission finds that potential adverse effects of the proposed development on riparian habitat of these streams may be further minimized through the implementation of a drainage and polluted runoff control plan, which will ensure that erosion is minimized and polluted run-off from the site is controlled and filtered before it reaches natural drainage courses within the watershed. Therefore, the Commission requires **Special Condition Two (2)**, the Drainage and Polluted Runoff Control Plan, which requires the applicant to incorporate appropriate drainage devices and Best Management Practices (BMPs) to ensure that run-off from the proposed structures, impervious surfaces, and building pad area is conveyed offsite in a non-erosive manner and is treated/filtered to reduce pollutant load before it reaches coastal waterways. Special Condition Two (2) will ensure implementation of these and other BMPs to reduce polluted runoff. Additionally, **Special Condition Eight (8)**, as discussed in the following water quality section, will ensure use of non-chemical water purification systems and proper maintenance of pH, calcium, and alkalinity balance for the proposed pool to ensure any runoff or drainage from the pool will not include excessive chemicals that may adversely affect ESHA.

In addition, the Commission has found that night lighting of areas in the Malibu/Santa Monica Mountains area creates a visual impact to nearby scenic roads, parks, and trails. In addition, night lighting may alter or disrupt feeding, nesting, and roosting activities of native wildlife species. The subject site contains environmentally sensitive habitat. Therefore, **Special Condition Nine (9)** limits night lighting of the site in general; limits lighting to the developed area of the site; and specifies that lighting be shielded downward. The restriction on night lighting is necessary to protect the night time rural character of this portion of the Santa Monica Mountains consistent with the scenic and visual qualities of this coastal area. In addition, low intensity security lighting will assist in minimizing the disruption of wildlife traversing this area at night that are commonly found in this rural and relatively undisturbed area. Thus, the lighting restrictions will attenuate the impacts of unnatural light sources and reduce impacts to sensitive wildlife species.

Furthermore, fencing of the site would adversely impact the movement of wildlife through the chaparral ESHA on this parcel. Therefore, the Commission finds it is necessary to limit fencing to the building pad area as required in **Special Condition Three (3)**.

Finally, the Commission finds that the amount and location of any new development that may be proposed in the future on the subject site is significantly limited by the unique nature of the site and the environmental constraints discussed above. Therefore, to ensure that any future structures, additions, change in landscaping or intensity of use at the project site, that may otherwise be exempt from coastal permit requirements, are reviewed by the Commission for consistency with the resource protection policies of the Coastal Act, **Special Condition Six (6)**, the future development restriction, has been required. **Special Condition Twelve (12)** requires the applicant to record a deed restriction that imposes the terms and conditions of this permit as restrictions on use and enjoyment of the property and provides any

prospective purchaser of the site with recorded notice that the restrictions are imposed on the subject property. In order to permanently ensure that no further development occurs on the site outside of the proposed development area, the Commission finds it necessary to also require the applicant to record a deed restriction prohibiting all development outside of the proposed development area as shown in **Exhibit 8**. As detailed in **Special Condition Thirteen (13)**, the deed restriction will run with the land, and will prohibit all development, with the exception of fuel modification and drainage control activities carried out in accordance with **Special Condition Two (2)** and **Special Condition Three (3)**. **Special Condition Thirteen (13)** allows planting of native vegetation, other restoration activities, and remediation of geologic hazards if approved by the Coastal Commission for the coastal development permit, as an amendment to this coastal development permit, or through a new coastal development permit. Existing easements for roads, trails, and utilities will also be excluded from the open space deed restriction area.

For the reasons set forth above, the Commission finds that the proposed project, as conditioned, is consistent with Sections 30230, 30231, 30240, and 30107.5 of the Coastal Act.

D. Water Quality

The Commission recognizes that new development in the Santa Monica Mountains has the potential to adversely impact coastal water quality through the removal of native vegetation, increase of impervious surfaces, increase of runoff, erosion, and sedimentation, and introduction of pollutants such as petroleum, cleaning products, pesticides, and other pollutant sources, as well as effluent from septic systems.

Section 30231 of the Coastal Act states:

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, minimizing alteration of natural streams.

The project site is located on a hillside lot approximately 200 feet from an unnamed blue line stream that is a tributary to Cold Creek. While no development is proposed in drainages onsite, the proposed development will result in an increase in impervious surface, which in turn decreases the infiltrative function and capacity of existing permeable land on site. The reduction in permeable space leads to an increase in the

volume and velocity of stormwater runoff that can be expected to leave the site. Further, pollutants commonly found in runoff associated with residential use include petroleum hydrocarbons including oil and grease from vehicles; heavy metals; synthetic organic chemicals including paint and household cleaners; soap and dirt from washing vehicles; dirt and vegetation from yard maintenance; litter; fertilizers, herbicides, and pesticides; and bacteria and pathogens from animal waste. 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 provide food and cover for aquatic species; disruptions to the reproductive cycle of aquatic species; and acute and sublethal toxicity in marine organisms leading to adverse changes in reproduction and feeding behavior. 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.

Therefore, in order to find the proposed development consistent with the water and marine resource policies of the Coastal Act, the Commission finds it necessary to ensure the incorporation of Best Management Practices designed to control the volume, velocity and pollutant load of stormwater leaving the developed site into the proposed project. Critical to the successful function of post-construction structural BMPs in removing pollutants in stormwater to the Maximum Extent Practicable (MEP), is the application of appropriate design standards for sizing BMPs. The majority of runoff is generated from small storms because most storms are small. Additionally, stormwater runoff typically conveys a disproportionate amount of pollutants in the initial period that runoff is generated during a storm event. Designing BMPs for the small, more frequent storms, rather than for the large infrequent storms, results in improved BMP performance at lower cost.

The Commission finds that sizing post-construction structural BMPs to accommodate (infiltrate, filter or treat) the runoff from the 85th percentile storm runoff event, in this case, is equivalent to sizing BMPs based on the point of diminishing returns (i.e. the BMP capacity beyond which, insignificant increases in pollutants removal (and hence water quality protection) will occur, relative to the additional costs. Therefore, the Commission requires the selected post-construction structural BMPs be sized based on design criteria specified in **Special Condition Two (2)**, and finds this will ensure the proposed development will be designed to minimize adverse impacts to coastal resources, in a manner consistent with the water and marine policies of the Coastal Act.

In addition, the applicant proposes to construct a swimming pool that may use chemicals such as chlorine and algaecides if drained from the site may be harmful to plants and animals in nearby environmentally sensitive habitat areas and creeks. The Commission notes that the proposed project is conditioned to incorporate the recommendations of the project's consulting geologists and geotechnical engineer

related to the construction of the swimming pool and to incorporate adequate site drainage, and erosion control.

However, the Commission also notes that both leakage and periodic maintenance drainage of the proposed swimming pool, if not monitored and/or conducted in a controlled manner, may result in excess runoff and erosion potentially causing instability of the site and adjacent properties and potential impacts from pool chemicals (i.e. pool water algaecides, chemical pH balancing, and other water conditioning chemicals) on the designated ESHA and Significant Watersheds. Therefore, the Commission imposes **Special Condition Eight (8)** on the subject application which requires the applicants to use a non-chemical water purification system and to maintain proper pH, calcium and alkalinity balance in a manner that any runoff or drainage from the pool will not include excessive chemicals that may adversely affect the environmentally sensitive habitat areas.

Furthermore, interim erosion control measure implemented during construction and post construction landscaping will serve to minimize the potential for adverse impacts to water quality resulting from drainage runoff during construction and in the post-development stage. Therefore, the Commission finds that **Special Condition Three (3)** is necessary to ensure the proposed development will not adversely impact water quality or coastal resources.

Finally, the proposed development includes the installation of an onsite private sewage disposal system to serve the residence. The County of Los Angeles Environmental Health Department has given in-concept approval of the proposed septic system, determining that the system meets the requirements of the plumbing code. The Commission has found that conformance with the provisions of the plumbing code is protective of resources. Therefore, the Commission finds that the proposed project, as conditioned, is consistent with Section 30231 of the Coastal Act.

E. Visual Resources

Section 30251 of the Coastal Act states:

The scenic and visual qualities of coastal areas shall be considered and protected as a resource of public importance. Permitted development shall be sited and designed to protect views to and along the ocean and scenic coastal areas, to minimize the alteration of natural land forms, to be visually compatible with the character of surrounding areas, and, where feasible, to restore and enhance visual quality in visually degraded areas. New development in highly scenic areas such as those designated in the California Coastline reservation and Recreation Plan prepared by the Department of Parks and Recreation and by local government shall be subordinate to the character of its setting.

Section 30251 of the Coastal Act requires scenic and visual qualities to be considered and preserved. Section 30251 also requires that development be sited and designed to protect views of scenic areas, minimize alteration of landforms, and be visually compatible with the surrounding area. The Commission is required to review the publicly accessible locations where the proposed development is visible to assess potential visual impacts to the public.

The subject site is located within a rural area characterized by expansive, naturally vegetated mountains and hillsides. The site is located on the side of hill and is visible from Piuma Road and state park lands adjacent to the property. Areas surrounding the property to the north and east are sparsely developed with residences. Two residences have been approved directly adjacent to the property. The other lots adjacent to the site to the south and west are vacant and/or owned by the State of California Mountain Recreation Conservation Authority. The densely developed Monte Nido subdivision is located approximately 0.75 miles north of the site.

The applicant proposes to construct a 5,007 sq. ft., 35 ft. high, three story, single-family residence with attached 600 sq. ft., two car garage; pool; spa; pool shed; 5,000 gallon water tank; septic system; retaining walls; water well, and access driveway. The residence will be stepped into the hillside, partially located on an existing graded area, and near Piuma Road, thereby minimizing the amount of grading and landform alteration necessary for the project. Grading for the project, including remediation of a landslide near the proposed driveway, will include 2,529 cu. yds (2,099 cu. yds. cut; 430 cu. yds. fill; 1,669 cu. yds export). The proposed water storage tank will be sited behind the residence and will not be visible from Piuma Road. The proposed residence and associated improvements will be located at the lowest possible location on the property and will not block public views from Piuma Road (**Exhibit 7**). The proposed residence is not excessive in height or size and is compatible with other existing residential development in the area. As the proposed residence will be unavoidably visible from public viewing areas, though, the Commission finds it necessary to require mitigation measures to minimize visual impacts associated with development of the project site.

The visual impact of the proposed structure, water tank, and retaining walls can be minimized by requiring these structures be finished in a color consistent with the surrounding natural landscape and, further, by requiring that windows on the proposed residence be made of non-reflective glass. To ensure visual impacts associated with the colors of the structure and the potential glare of the window glass are minimized, the Commission requires the applicant to use colors compatible with the surrounding environment and non-glare glass, as detailed in **Special Condition Ten (10)**.

Visual impacts associated with proposed grading, and the structures themselves, can be further reduced by the use of appropriate and adequate landscaping. Therefore, **Special Condition Three (3)** requires the applicant to ensure that the vegetation on site remains visually compatible with the native flora of surrounding areas. Implementation of Special Condition Three (3) will soften the visual impact of the

development from public view areas. To ensure that the final approved landscaping plans are successfully implemented, Special Condition Two (2) also requires the applicant to revegetate all disturbed areas in a timely manner and includes a monitoring component to ensure the successful establishment of all newly planted and landscaped areas over time.

In addition, the Commission has found that night lighting of areas in the Malibu/Santa Monica Mountains area creates a visual impact to nearby scenic roads and trails. In addition, night lighting may alter or disrupt feeding, nesting, and roosting activities of native wildlife species. The subject site contains environmentally sensitive habitat. Therefore, **Special Condition Nine (9)** limits night lighting of the site in general; limits lighting to the developed area of the site; and specifies that lighting be shielded downward. The restriction on night lighting is necessary to protect the nighttime rural character of this portion of the Santa Monica Mountains consistent with the scenic and visual qualities of this coastal area.

Finally, regarding future developments or improvements, certain types of development on the property, normally associated with a single-family residence, which might otherwise be exempt, have the potential to impact scenic and visual resources in this area. It is necessary to ensure that any future development or improvements normally associated with the entire property, which might otherwise be exempt, is reviewed by the Commission for compliance with the scenic resource policy, Section 30251 of the Coastal Act. **Special Condition Six (6)**, the Future Development Restriction, will ensure that the Commission will have the opportunity to review future projects for compliance with the Coastal Act. Further, **Special Condition Twelve (12)** requires the applicant to record a deed restriction that imposes the terms and conditions of this permit as restrictions on use and enjoyment of the subject property and provides any prospective purchaser with recorded notice that the restrictions are imposed on the subject property.

G. 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 to 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 projects and are accepted by the applicant. As conditioned, the proposed developments 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 developments, 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).

H. 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 finds that the proposed projects, as conditioned, will not have significant adverse effects on the environment within the meaning of the California Environmental Quality Act of 1970. Therefore, the proposed project, as conditioned, has been adequately mitigated and is determined to be consistent with CEQA and the policies of the Coastal Act.

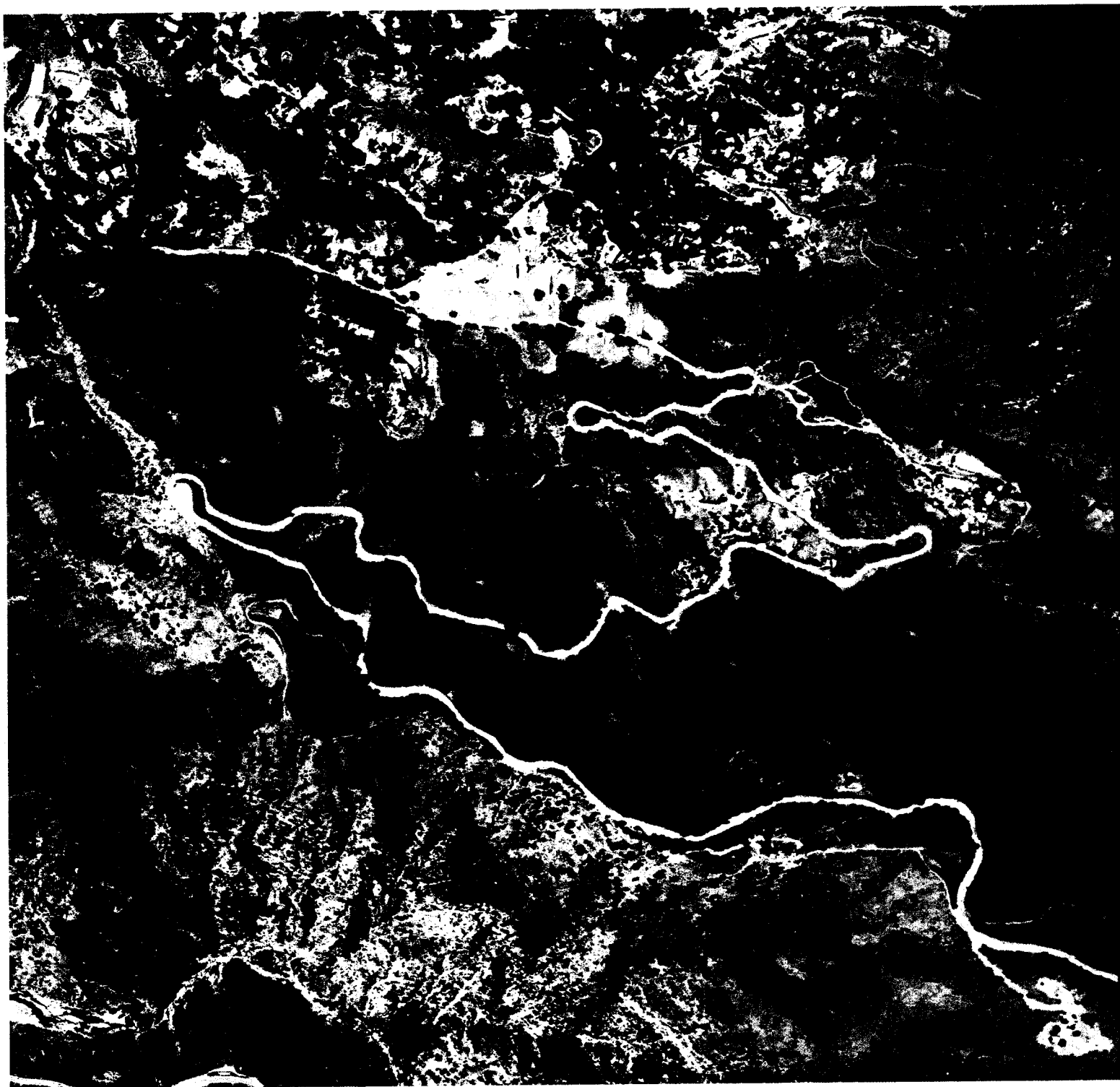


Exhibit 2

CDP 4-04-052

**2001 Aerial
Photo of Site**

et. 4/8/05

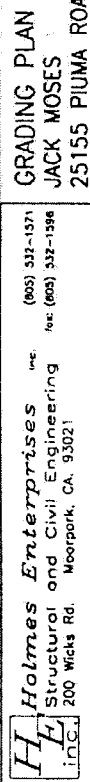
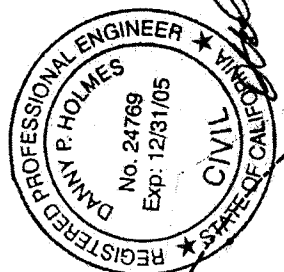
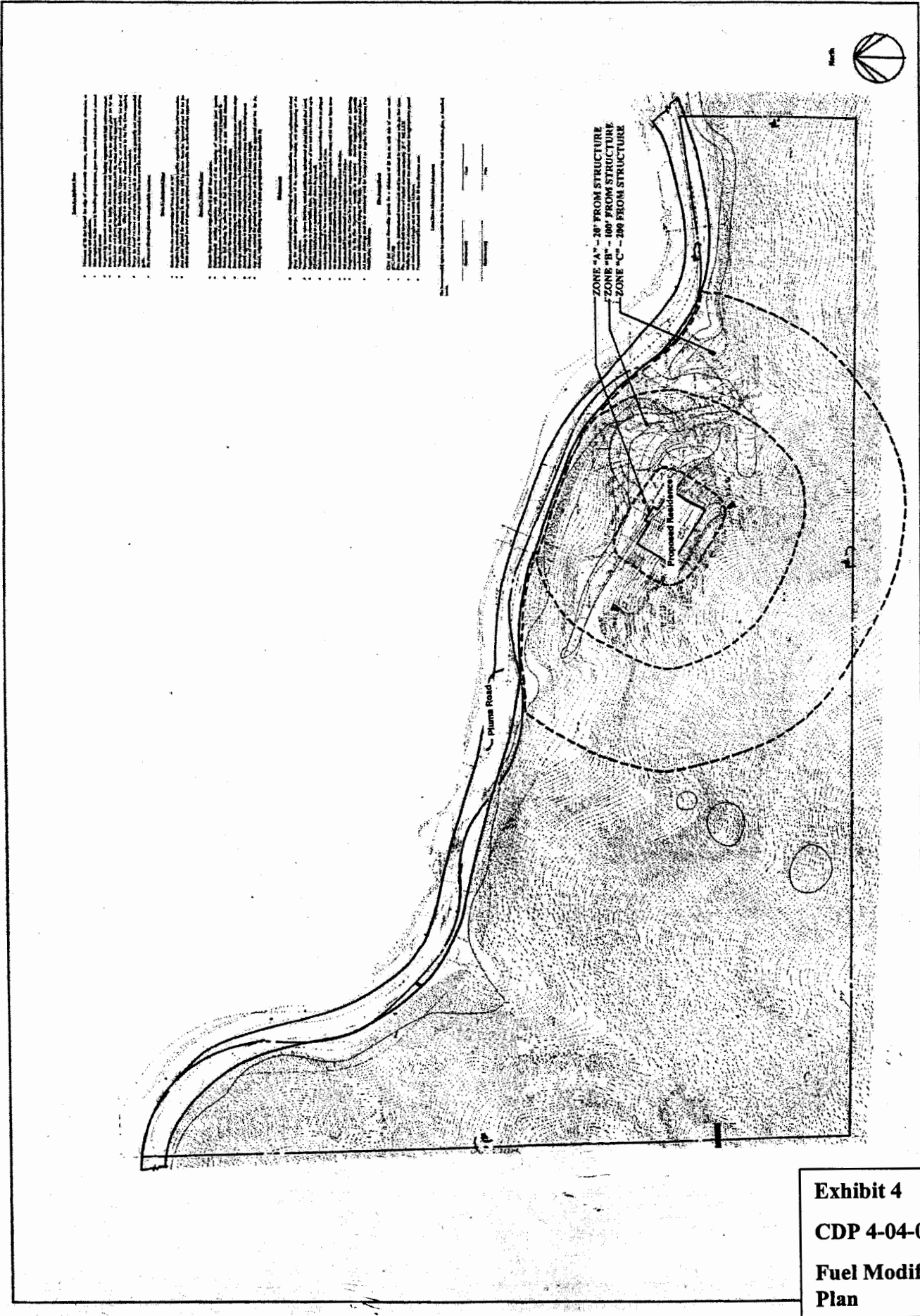


Exhibit 3
CDP 4-04-052
Site Plan

Custom Residence
 25155 Pluma Road

Fuel Modification Plan
 Fire Zones

Bruce Malinowski
 Landscape Architect #4774
 29350 PCH #5B
 Malibu, Ca. 90266
 310.824.8109



1. The purpose of this plan is to show the fire zones for the proposed residence. The fire zones are defined by the distance from the structure to the fire zone boundary. The fire zones are defined as follows:

- Zone A - 30' from structure
- Zone B - 100' from structure
- Zone C - 200' from structure

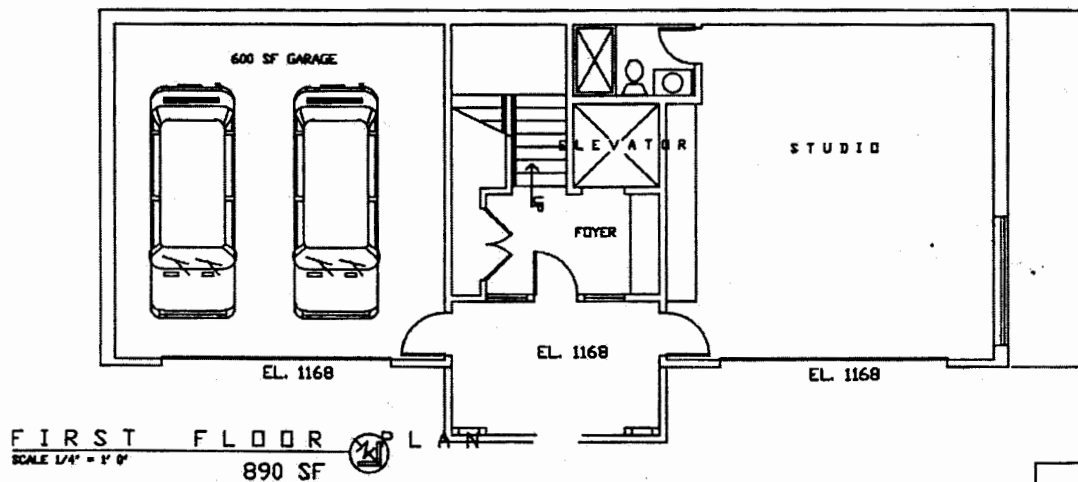
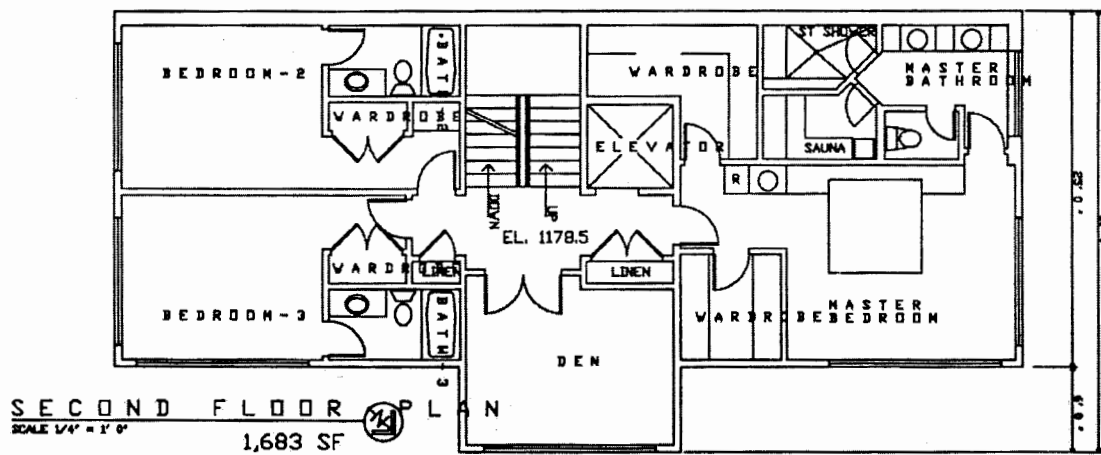
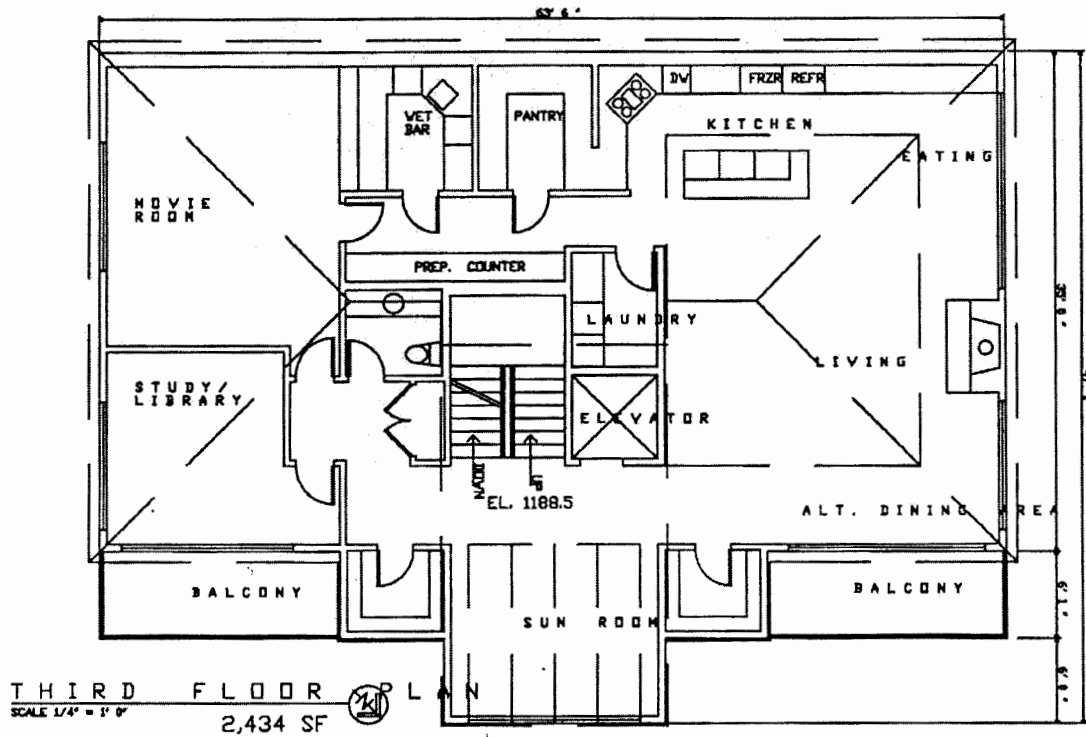
2. The fire zones are defined by the distance from the structure to the fire zone boundary. The fire zones are defined as follows:

- Zone A - 30' from structure
- Zone B - 100' from structure
- Zone C - 200' from structure

3. The fire zones are defined by the distance from the structure to the fire zone boundary. The fire zones are defined as follows:

- Zone A - 30' from structure
- Zone B - 100' from structure
- Zone C - 200' from structure

Exhibit 4
 CDP 4-04-052
 Fuel Modification Plan



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CDP 404

DATE 05-14-03

PRELIMINARY
DRAWINGS

ELEVATIONS
SHEET

A3

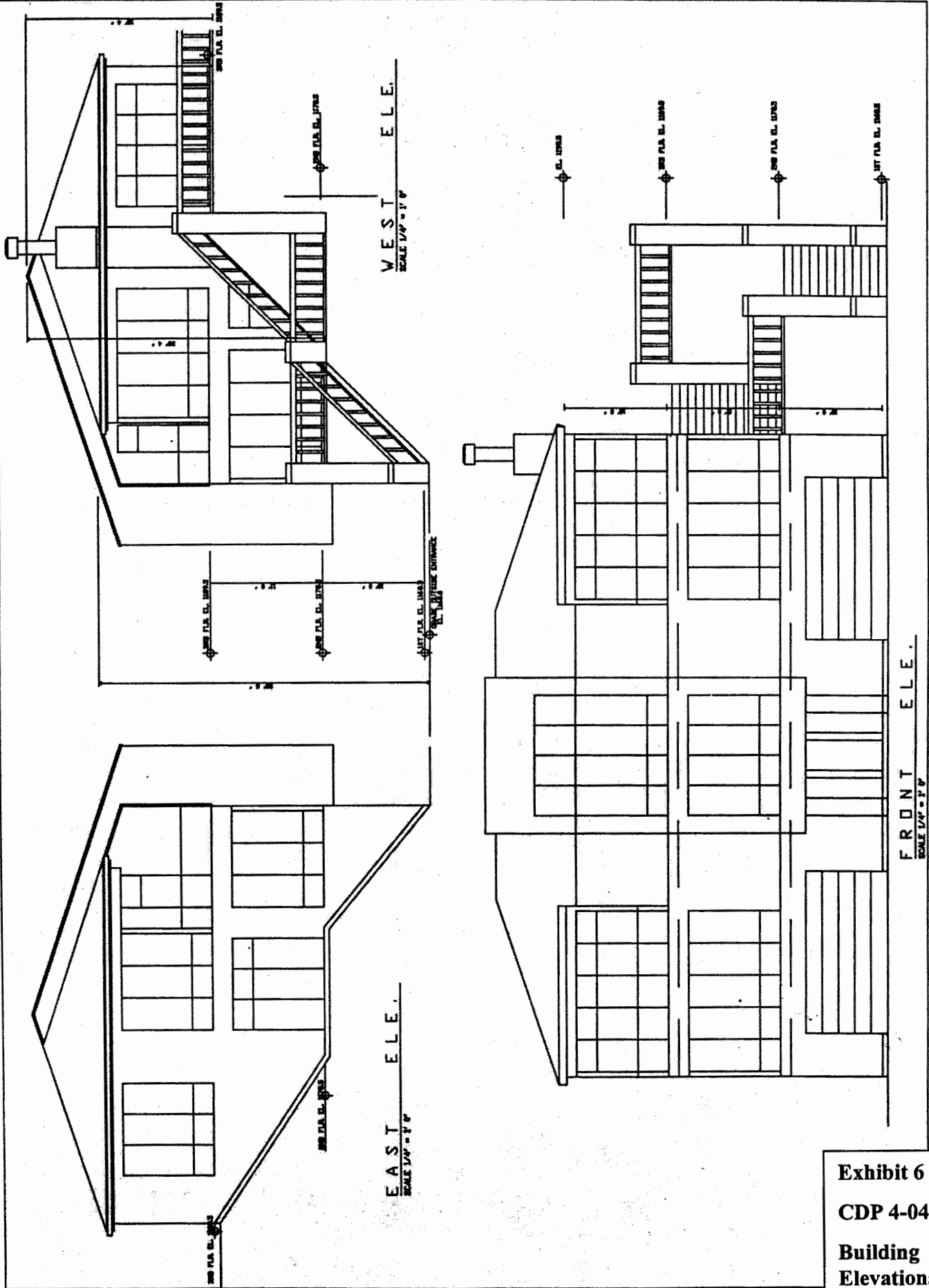
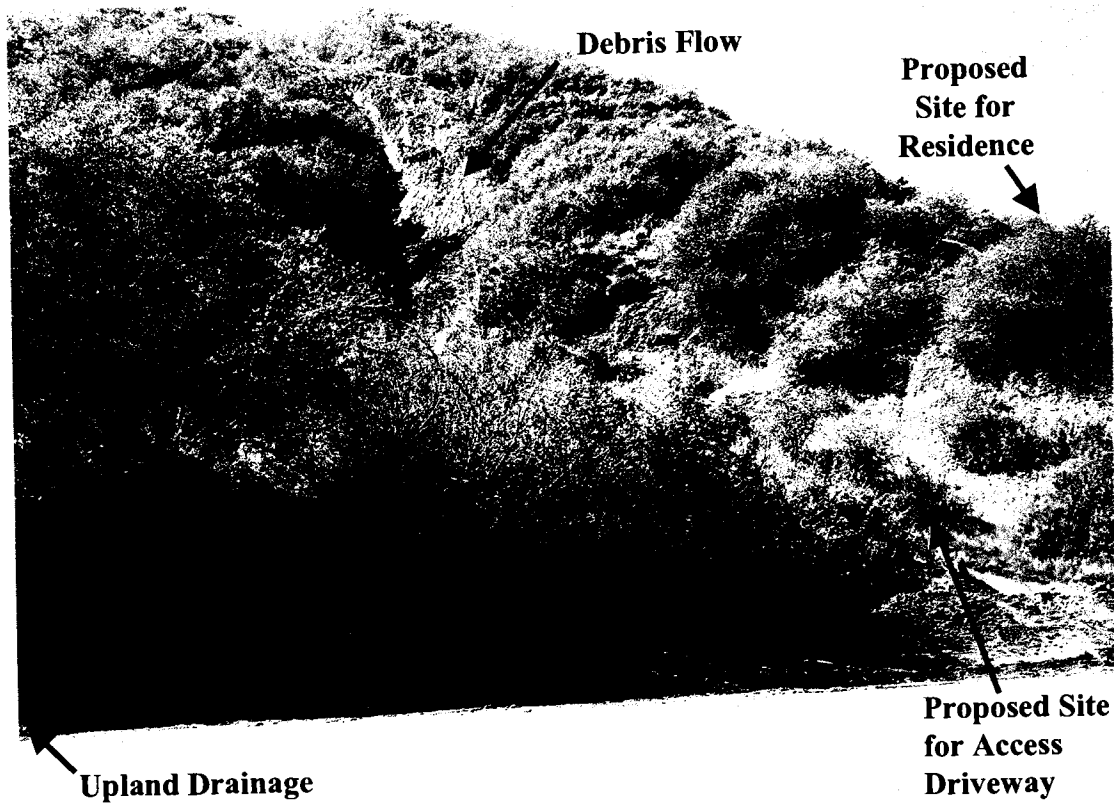
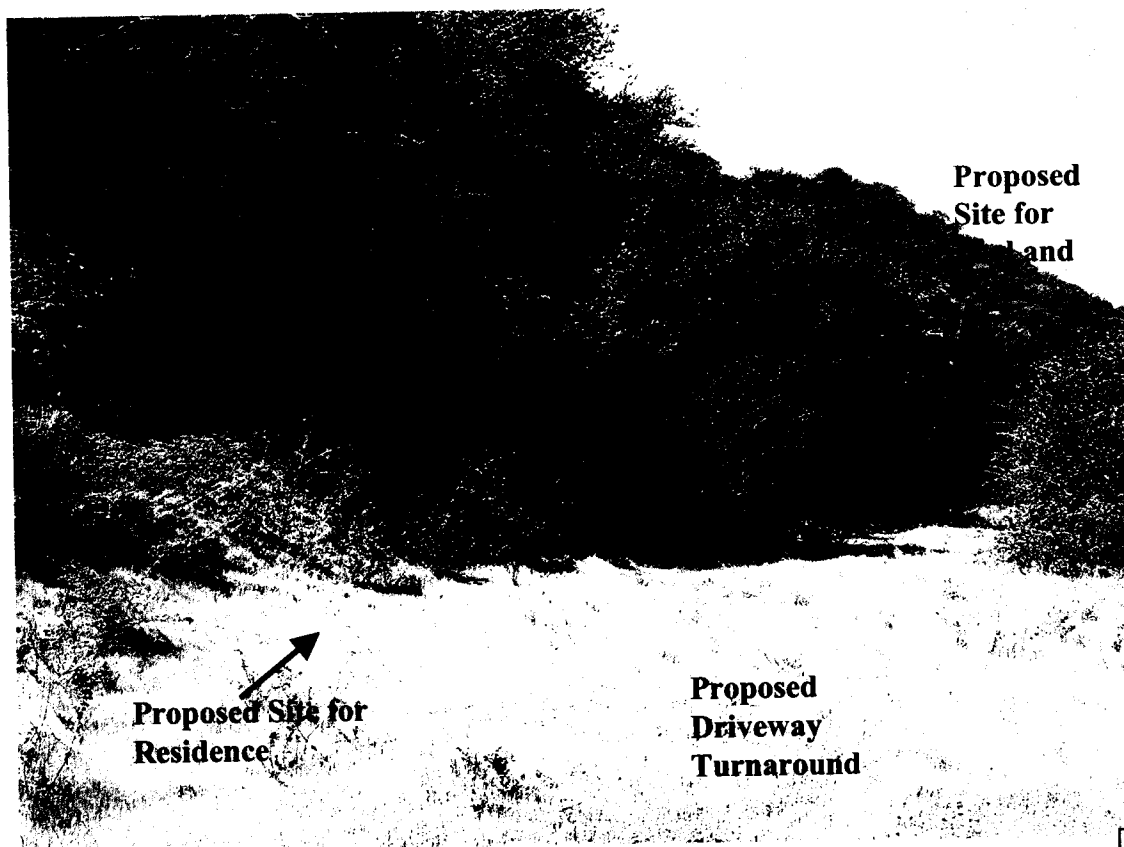


Exhibit 6
CDP 4-04-052
Building
Elevations



View of building site from Piuma Road.



Existing dozer trail. Site of proposed residence, turnaround, pool, and patio.

Exhibit 7

CDP 4-04-052

Photos of Site



Upland drainage on eastern side of property.



View of Piuma Road from proposed building site.

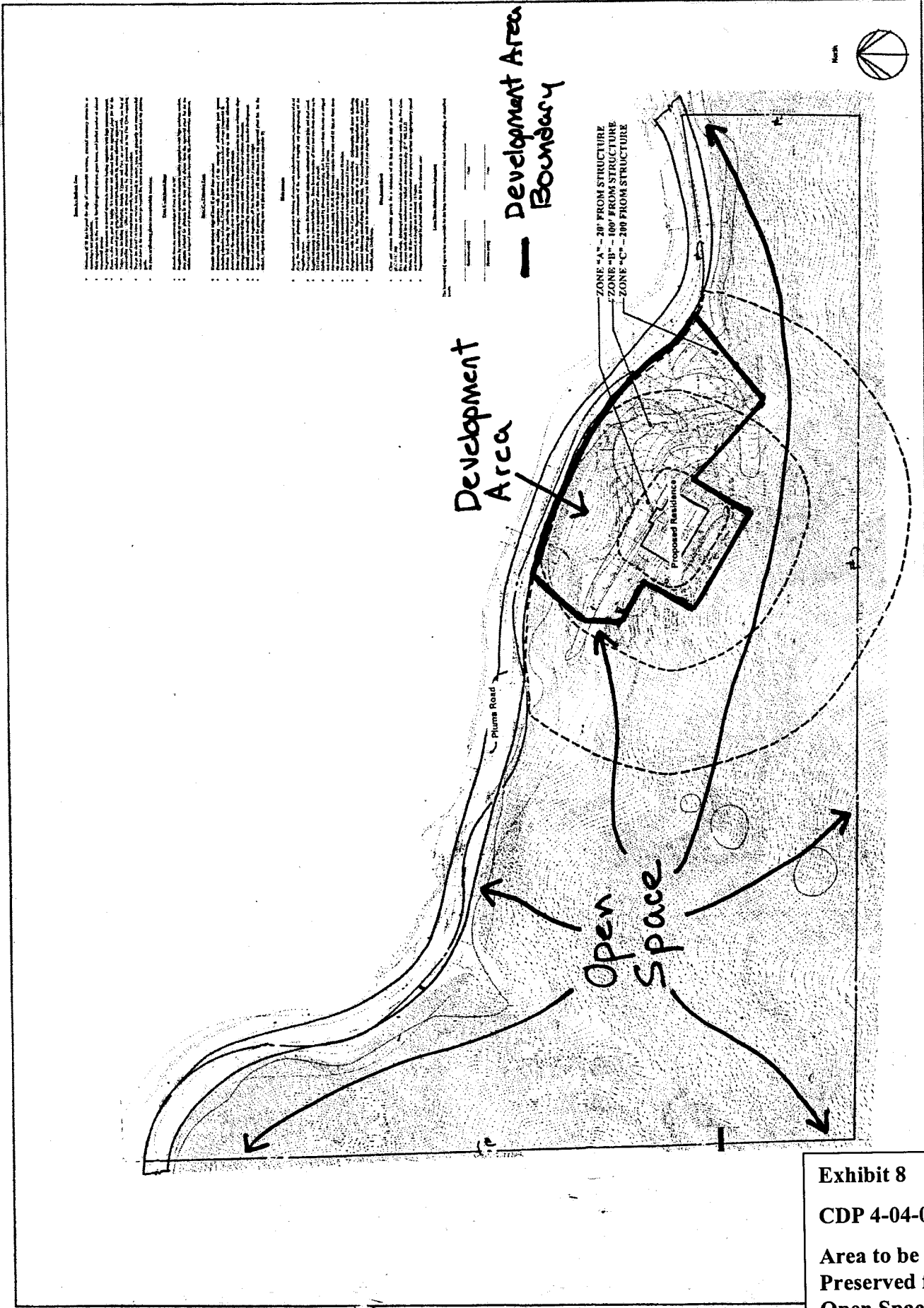


Exhibit 8
CDP 4-04-052
Area to be
Preserved for
Open Space

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 9

CDP 4-04-052

ESHA
Findings

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 undisturbed¹. 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 2000². Therefore, this relatively pristine area is both large and mostly unfragmented, which fulfills a fundamental tenet of conservation biology³. The need for large contiguous areas of natural habitat in order to maintain critical ecological processes has been emphasized by many conservation biologists⁴.

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 ecosystems⁵. 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 Agency⁶ 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

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 report⁷. 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 important⁸.

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 deer⁹. Large terrestrial predators are particularly good indicators of habitat connectivity and of the general health of the ecosystem¹⁰. 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 bobcat¹¹. Sightings of cougars in both inland and coastal areas of the Santa Monica Mountains¹² 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 structure¹³. Beyond simply destabilizing the ecosystem, fragmentation and disturbance

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. *Conserv. 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. Beler, 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 Wiltier, 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. Baltimore, 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 outlets¹⁵. 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 types¹⁶ 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 protection¹⁷.

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,

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 review¹⁸. 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 Holland¹⁹. 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 Mountains²⁰ 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 area²¹. 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

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 lifecycles²². 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 listing²³, 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 work²⁴ 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 habitat²⁵. 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 streambed²⁶. 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 lost²⁷. 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 disturbances²⁹. 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 crayfish³¹. These introduced predators have eliminated the newts from streams where they previously occurred by both direct predation and suppression of breeding.

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. Kellier, 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 process³³. 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 saturated³⁶. New growth of chaparral evergreen shrubs takes place about four months later than coastal sage scrub plants and it continues later into the summer³⁷. For example, in coastal sage scrub, California sagebrush flowers and grows from August to February and coyote bush flowers from August to November³⁸. 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 spring³⁹. The insects in turn are followed by insectivorous birds such as the blue-gray gnatcatcher⁴⁰, 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 Mountains⁴¹. Five species of hummingbirds also follow the flowering cycle⁴².

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 type⁴³.

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 students⁴⁴."

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 lakes⁴⁵.

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, Stralberg⁴⁶ 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. Soule⁴⁷ 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 subtypes⁴⁸. 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.

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 lizards⁴⁹, 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 effects⁵⁰, 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 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

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 Mexico⁵¹. 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 species⁵³, many of which are also endemic to limited geographic regions⁵⁴. In the Santa Monica Mountains, rare animals that inhabit coastal sage scrub⁵⁵ 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 chaparral⁵⁶. 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 lily⁵⁷. 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

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 plants⁶¹.

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 chaparral⁶². 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 sugarbush⁶³. 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 bush⁶⁴.

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, Branton's milk vetch and salt spring checkerbloom⁶⁵. 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 homed lizard, an ant specialist⁶⁷. 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

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 below⁶⁸, 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 time⁷⁰. Thus, the erosion from a 2-inch rain-day event drops from 5 yd³/acre of soil one year after a fire to 1 yd³/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 coast⁷². 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 recognized⁷³. These habitats support a high diversity of birds⁷⁴, and provide refuge for many species of sensitive bats⁷⁵. 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 factors⁷⁶. Mixed with these native needlegrasses are many non-native annual species that are characteristic of California annual grassland⁷⁷. Native perennial grasslands are now exceedingly rare⁷⁸. In California, native grasslands once covered nearly 20 percent of the land area, but today are reduced to less than 0.1 percent⁷⁹. The California Natural Diversity Database (CNDDDB) lists purple needlegrass habitat as a community needing priority monitoring and restoration. The CNDDDB 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 falcon⁸⁰.

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 habitats⁸¹, 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 ownership⁸², and computer simulation studies of the development patterns over the next 25 years predict a serious increase in habitat fragmentation⁸³. 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 activities⁸⁴. 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 stated⁸⁵ *"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 carriers⁸⁷. 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 zone⁸⁸ around the home. The combination of insurance incentives and regulation assures that the 200-foot clearance zone will be applied universally⁸⁹. 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 vegetation⁹⁰. 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, wren-tit, 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 chaparral⁹².

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 area⁹³. The Argentine ant competes with native harvester ants and carpenter ants displacing them from the habitat⁹⁴. 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 developments⁹⁵. 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 mutualisms⁹⁶. 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 habitats⁹⁷.

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 seeds⁹⁹.

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 organisms¹⁰⁰. 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 Rich¹⁰¹.

Summary

In a past action, the Coastal Commission found¹⁰² 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 Game¹⁰³. 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 chaparral (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.

