RANCHO PALOS VERDES

PORTUGUESE BEND GRADING PROJECT INITIAL STUDY

PREPARED FOR

THE CITY OF
RANCHO PALOS VERDES

PREPARED BY

EDAW

INITIAL STUDY

PROJECT:

PORTUGUESE BEND GRADING PROJECT
RANCHO PALOS VERDES, CALIFORNIA

LEAD AGENCY:

CITY OF RANCHO PALOS VERDES
30940 HAWTHORNE BOULEVARD
RANCHO PALOS VERDES, CALIFORNIA 90274-5391
(310) 377-0360

PREPARED BY:

EDAW, INC.
1920 MAIN STREET, SUITE 450
IRVINE, CALIFORNIA 92714
(714) 660-8044

SEPTEMBER 9, 1994

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EXHIBITS

INTRODUCTION

GENERAL PURPOSE

This Initial Study has been prepared in accordance with the provisions of the California Environmental Quality Act of 1970 (CEQA) as amended (Public Resources Code Section 21000 et seq.), and the State CEQA Guidelines for Implementation of the California Environmental Quality Act of 1970 as amended (California Code of Regulation Section 15000 et seq.). This report complies with the rules, regulations, and procedures for implementation of the California Environmental Quality Act adopted by the City of Rancho Palos Verdes (Local CEQA Guidelines). This document, combined with the attached environmental analysis form and supporting data, constitutes the Initial Study on the proposed Portuguese Bend Grading project in the City of Rancho Palos Verdes. The purpose of this analysis is to determine whether or not the proposed project may have a significant effect on the environment and to identify feasible mitigation measures.

If, based upon the information presented in this study, it is determined that the project will not have any significant impacts or that such impacts can be mitigated to a level of insignificance, a Negative Declaration will be issued. If it is determined that the proposed project may have a significant environmental impact that cannot be adequately mitigated, the lead agency will require the preparation of an Environmental Impact Report (EIR).

LEAD AGENCY/CONTACT PERSONS *(Responsible and Trustee Agencies)*

In accordance with Section 15050 and 15367 of the State CEQA Guidelines, the City of Rancho Palos Verdes has been designated as the "lead agency" which is defined as the "public agency which has the principal responsibility for carrying out or approving a project." The project will be funded by the Redevelopment Agency (RDA) and implemented by the City working for the RDA. The project sponsor is the City of Rancho Palos Verdes Redevelopment Agency which is staffed in part by the City of Rancho Palos Verdes Public Works Department. The environmental consultant to the City of Rancho Palos Verdes is EDAW, Inc. The key contact persons are as follows:

The Lead Agency Contact:

Mr. Bret Bernard, AICP
Director of Planning, Building, and Code Enforcement
Mr. Joel Rojas
Senior Planner
City of Rancho Palos Verdes
30940 Hawthorne Boulevard
Rancho Palos Verdes, California 90274-5391
(310) 377-6008

Environmental Consultant:

Mr. Tim Gnibus
Project Manager
EDAW, Inc.
1920 Main Street, Suite 450
Irvine, California 92714
(714) 660-8044

Project Sponsor:

Trent Pulliam
Director of Public Works
City of Rancho Palos Verdes
Department of Public Works
30940 Hawthorne Boulevard
Rancho Palos Verdes, California 90274-5391
(310) 541-6500

Responsible and Trustee Agencies

Responsible Agencies are those agencies which have discretionary approval over one or more actions involved with project implementation. Trustee Agencies are state agencies having discretionary approval or jurisdiction by law over natural resources affected by a proposed project which are held in trust for the people of the State of California. Potential responsible and trustee agencies include, but are not limited to the following:

Responsible Agencies

U.S. Department of Fish and Wildlife

Trustee Agencies

California Department of Fish and Game
South Coast Air Quality Management District
Regional Water Quality Control Board (NPDES)

PROJECT DESCRIPTION

PROJECT LOCATION AND SETTING

The proposed Portuguese Bend Grading Project is located within the City of Rancho Palos Verdes Redevelopment Area. The City of Rancho Palos Verdes is located in the southwest portion of Los Angeles County. The project site is shown in its regional context on Exhibit 1. This exhibit depicts the project site in relation to the regional surroundings.

The project site is comprised of three vacant non-contiguous areas (Areas A, B, and C) located on the eastern portion of the Portuguese Bend landslide. The Portuguese Bend Landslide area comprises approximately 120 acres. These areas are described in detail below under project characteristics. There is currently no public access to the project site. The project can currently be accessed via existing dirt roads. Access through the entire Portuguese Bend landslide area is provided from Crenshaw Boulevard north of the project site, and Palos Verdes Drive South on the south side of the project site. Access to the project area via Palos Verdes Drive South and Crenshaw Boulevard is controlled by a locked gate.

The project's location is shown in its local vicinity on Exhibit 2. Exhibit 2 also depicts the location of the specific areas of proposed grading activity (A, B and C) within the Portuguese Bend Landslide. As can be seen from this exhibit, Areas A and B are located adjacent to each other while Area C is located to the northwest of Areas A and B. The project site is depicted on a USGS topographical map in Exhibit 3. An aerial photo of the project site is provided in Exhibit 4. This aerial photo depicts the project areas as they existed in a graded condition several years ago.

The existing characteristics of the approximate 80 acre Portuguese landslide area include imposing natural terrain (with elevations ranging from 0′ to 500′ above sea level), and significant geological features. The geological features within the landslide area include steep rugged slopes with several deep, narrow canyons trending southwestward towards a steep sea cliff shoreline. The areas surrounding the Portuguese Bend Landslide Area boundaries are currently residential and undeveloped land to the south and southeast, residential and undeveloped land to the north, residential and undeveloped land to the northwest, undeveloped land to the east and southeast, and residential and undeveloped land to the west.

The portion of the project which is proposed for cut activity (Area A) has been previously graded. Additionally, the project site areas proposed for fill activity (Area B and Area C) have been previously graded and/or currently are disturbed. The uses which surround the project areas (A, B, and C) include those described above within the boundaries of the Portuguese Bend landslide.

PROJECT CHARACTERISTICS

The proposed project involves the removal of approximately 50,000 cubic yards of earth material from a cut area approximately 6.25 acres in size and located in the southeastern portion of the Portuguese Bend landslide. This cut area is referred to as Area A within this environmental document. The project also involves the redistribution of the 50,000 cubic yards of earth material to two (2) previously graded/disturbed fill areas. One fill area is located adjacent to area A. This area (referred to as Area B) is located to the northeast of Area A and is approximately 2.00 acres in size. The second fill area (referred to as area C) is located immediately northwest of Area A and is approximately 4.65 acres in size. Exhibits 5 and 6 depict the locations of the proposed cut and fill areas within the Portuguese Bend Landslide.

The purpose of the proposed project is to reduce driving forces in an active portion of the Portuguese Bend landslide by moving earth from a driving force area to a neutral area of driving force.

PHASING

The proposed project is anticipated to be completed within six (6) weeks from the initiation of project grading.

PROJECT OBJECTIVES

The project objectives are:

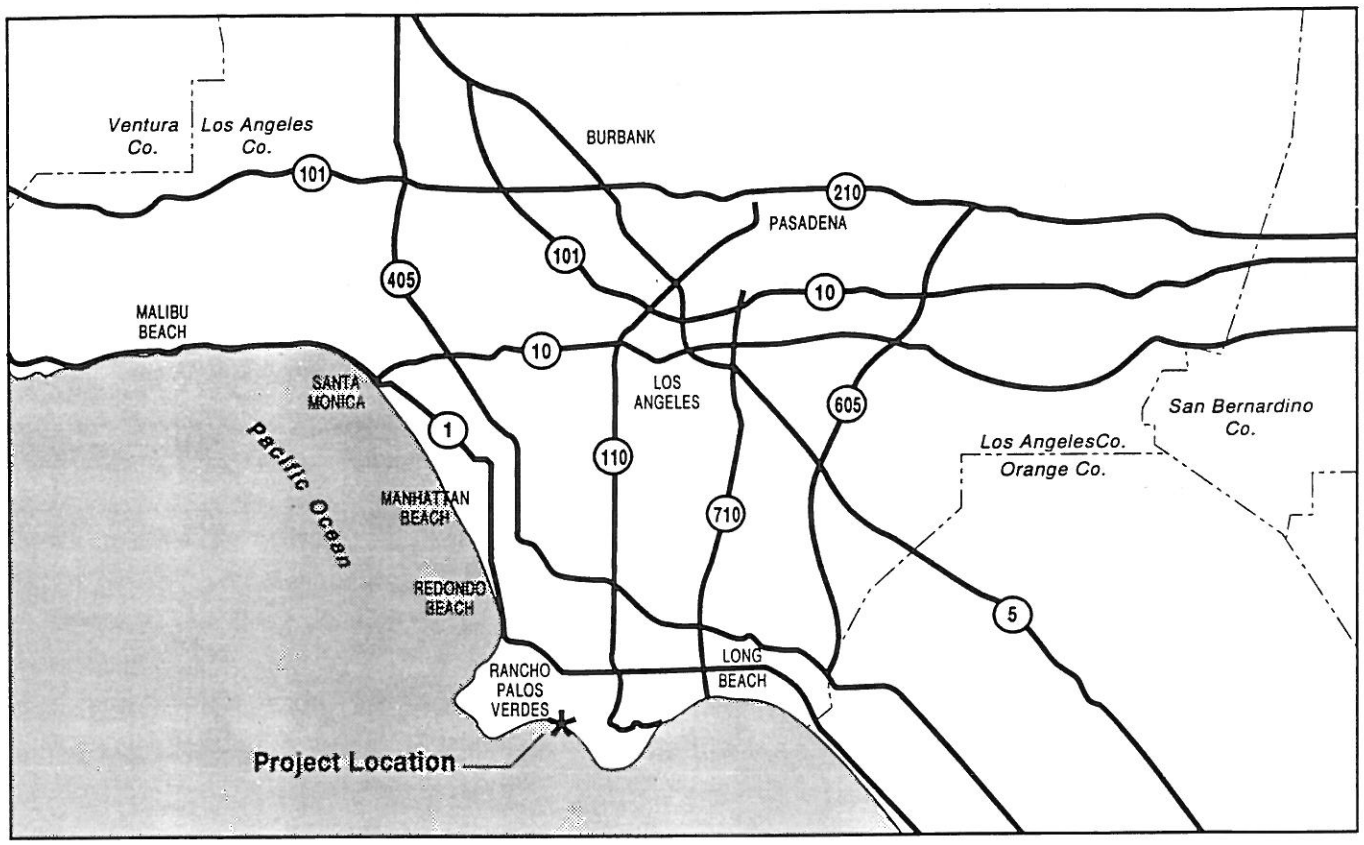
- To help reduce the rate of movement and stabilize the Portuguese Bend landslide by removing earth from a driving force area to a neutral area of driving force.

- To stabilize the Portuguese Bend landslide which will halt damage to homes and property, and improve public safety.

PROPOSED ACTIONS FOR PROJECT APPROVAL

The following discretionary actions are required for implementation of the proposed project:

1. **Negative Declaration.** As part of the approval process for the environmental documentation, the issuance and public notice of a Negative Declaration will be made in accordance with Section 15072 of the California Environmental Quality Act (CEQA).



Source: Thomas Bros. Maps

Exhibit 1

Regional Location

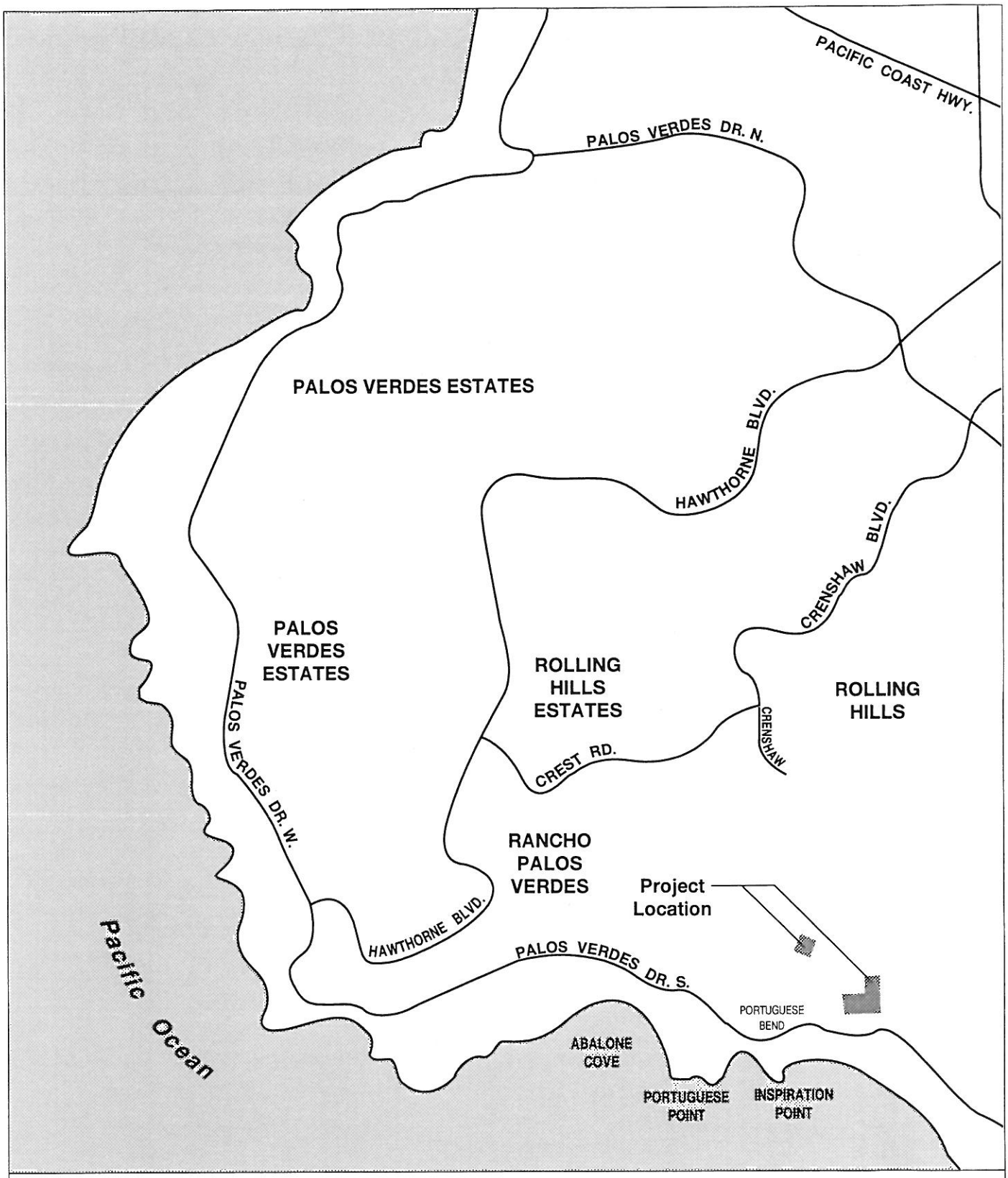
EDAW

0 2.5 miles

Portuguese Bend Grading Project Initial Study

City of Rancho Palos Verdes

MAC3N086.01/073093



Source: Thomas Bros. Maps

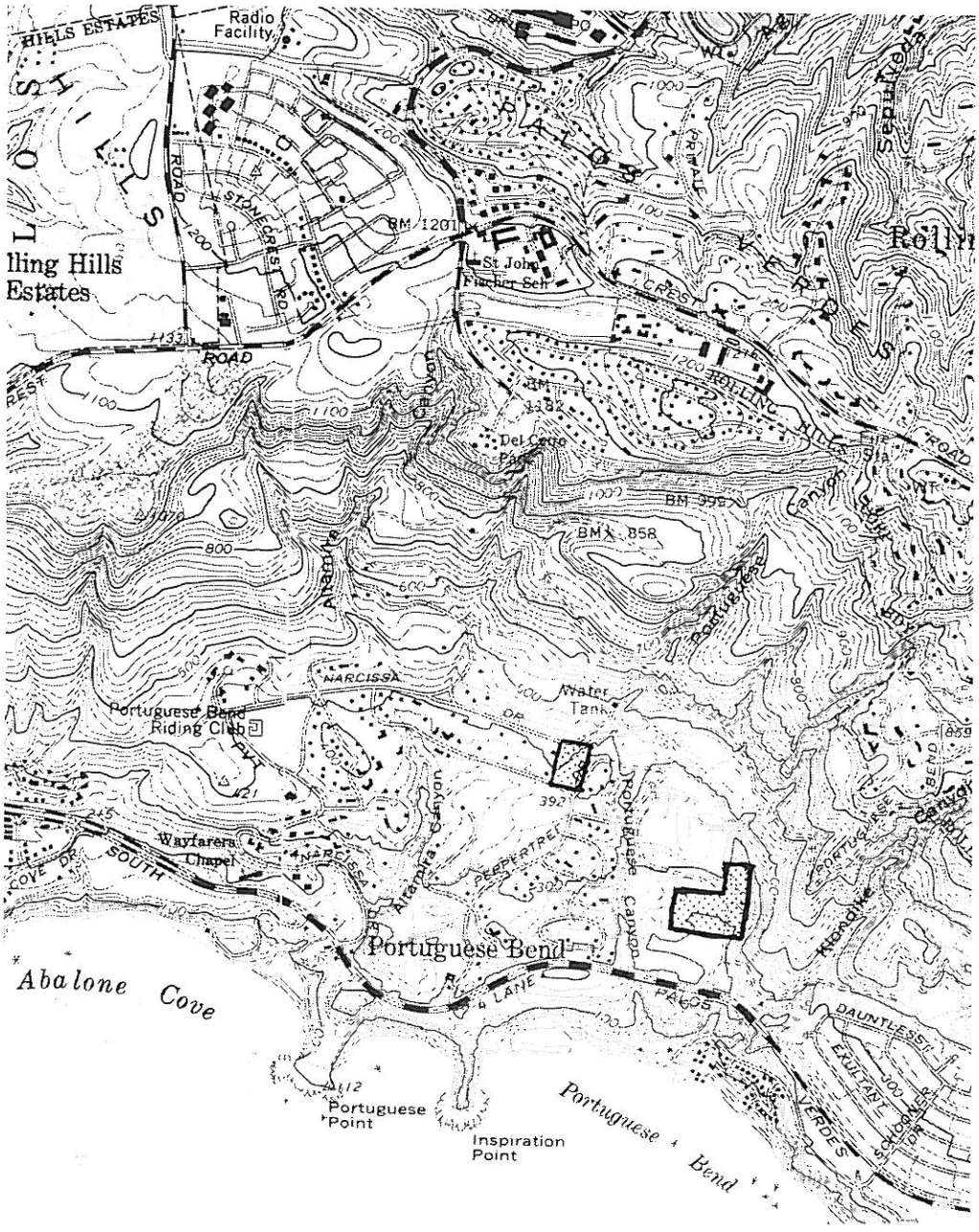
Exhibit 2
Local Vicinity

EDAW

0 1600'

Portuguese Bend Grading Project Initial Study
City of Rancho Palos Verdes

MAC3N086.01/073093



Source: USGS

USGS Map

Source: Pacific Aerographics

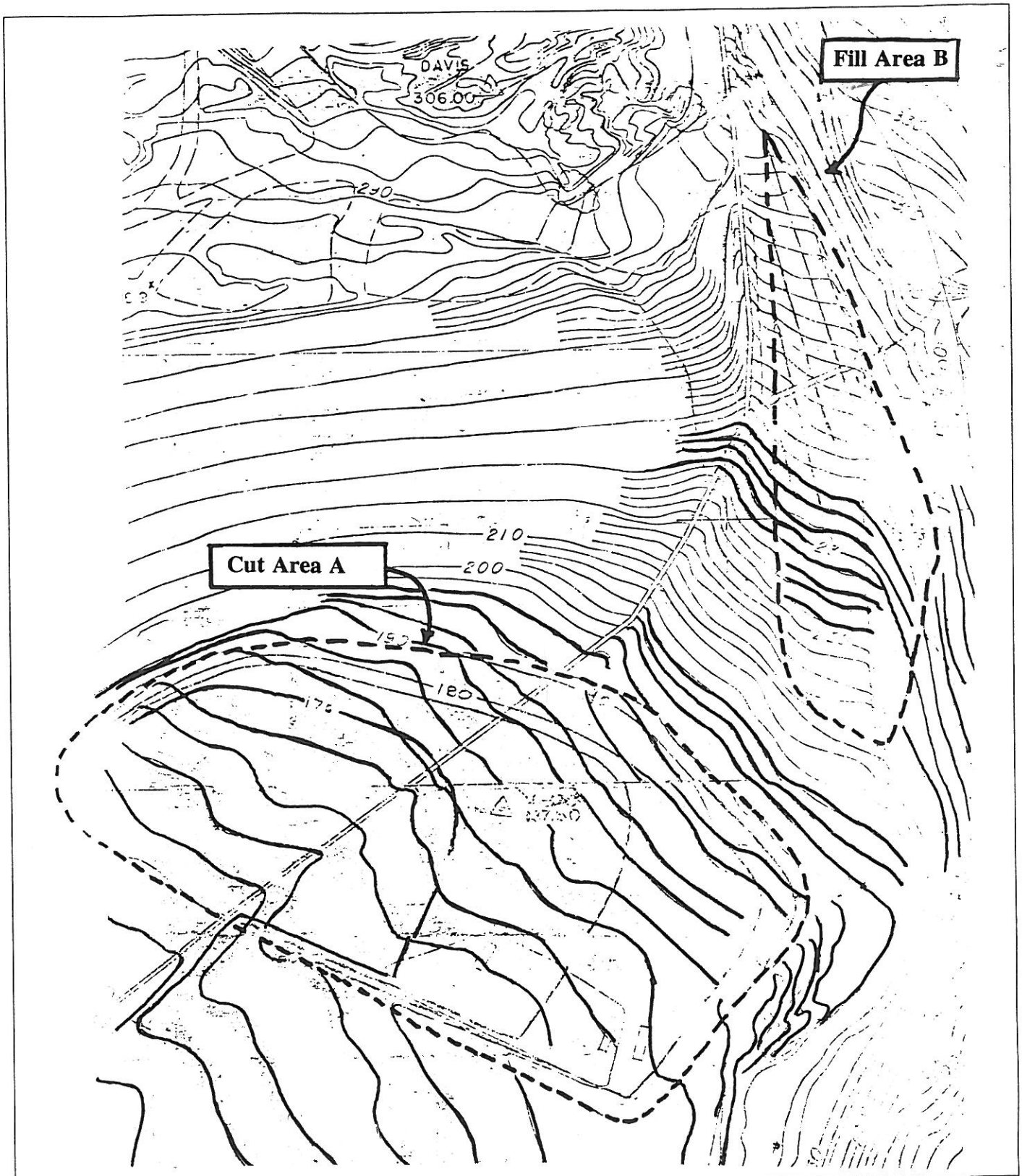
Exhibit 4
Aerial Photo

EDAW

No Scale

Portuguese Bend Grading Project Initial Study
City of Rancho Palos Verdes

MC3N086.01/101993Por



Source: Thomas Bros. Maps

Exhibit 5

Cut Area A/Fill Area B

EDAW

Portuguese Bend Grading Project Initial Study

City of Rancho Palos Verdes

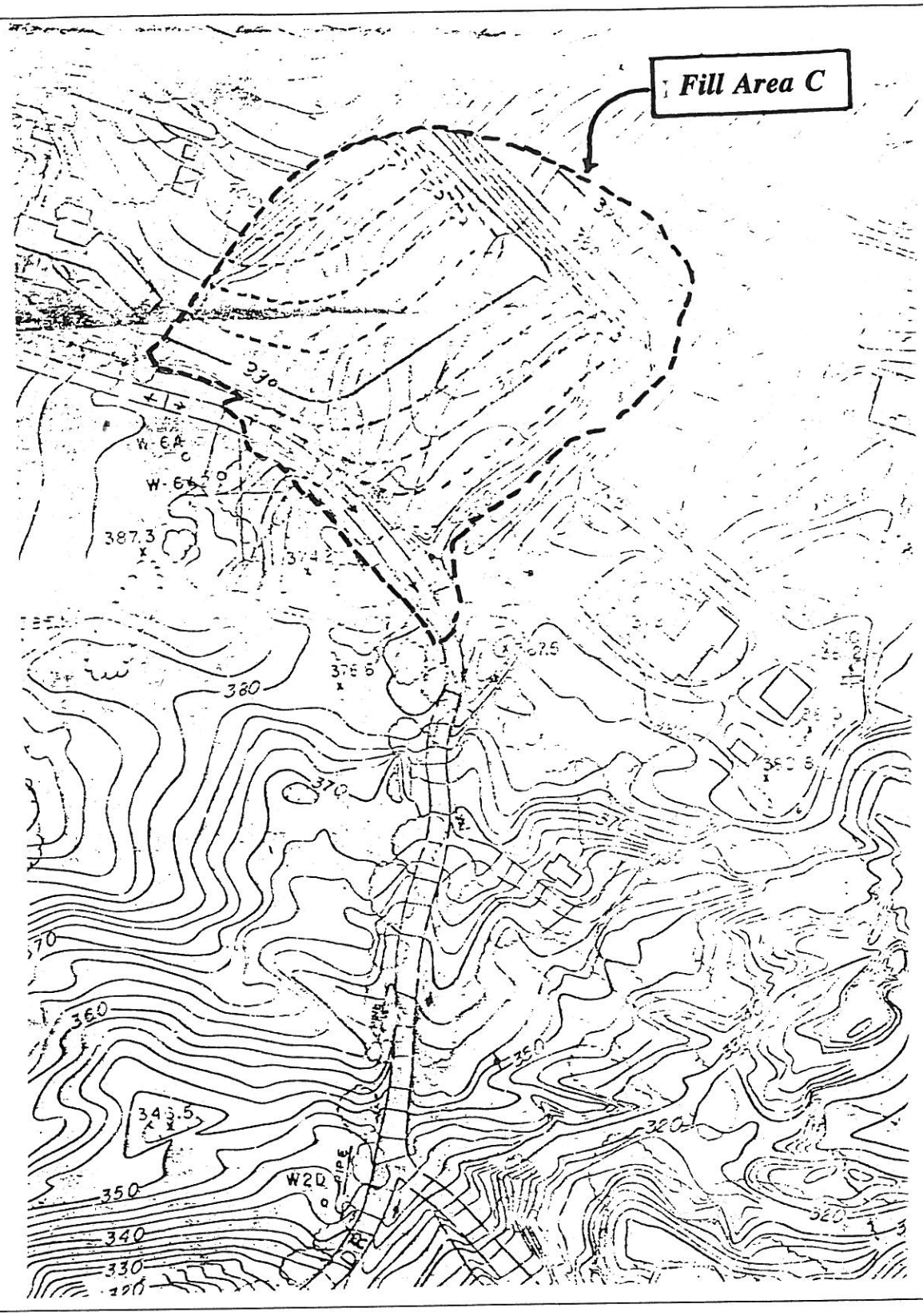


Exhibit 6

Fill Area C

Source: Thomas Bros. Maps

EDAW

Portuguese Bend Grading Project Initial Study

City of Rancho Palos Verdes

ENVIRONMENTAL EVALUATION

The following section evaluates the potential impacts of the proposed project. The environmental checklist, consistent with the California Environmental Quality Act (CEQA) guidelines, was used to focus this study on physical, social, and economic factors that may be further impacted by the proposed project. The checklist indicates with a "yes," "maybe," or "no" whether a specified potential impact will occur, may occur, or will not occur. Initial Study responses have also been prepared. These responses which begin on page 22 provide explanations for questions contained in the environmental checklist. Each "Yes", "No" or "Maybe" answer is discussed as required by CEQA.

INITIAL STUDY

Introduction

Compliance with the California Environmental Quality Act (CEQA) will be required to implement the Portuguese Bend grading project. An Initial Study is a preliminary analysis of the proposed project prepared by the lead agency to determine whether an EIR or Negative Declaration must be prepared. A secondary purpose is to identify any significant environmental effects to be analyzed in an EIR (CEQA Guidelines Sec. 15365). The Initial Study for the proposed Portuguese Bend Grading Project will serve to mitigate effects determined to be potentially significant leading to a Mitigated Negative Declaration. In accordance with Section 10563(d) of the CEQA Guidelines, a checklist has been completed which identifies any potential environmental effects that could occur as a result of project implementation.

ENVIRONMENTAL CHECKLIST FORM

Background

1. **Name of Proponent**: City of Rancho Palos Verdes/Redevelopment Agency

2. **Address and Phone Number of Proponent**: 30940 Hawthorne Boulevard, Rancho Palos Verdes, California 90274, (310) 377-0360

3. **Date Checklist Prepared**: July 18, 1994.

4. **Lead Agency**: City of Rancho Palos Verdes

5. **Name of Proposed Project**: Portuguese Bend Grading Project

Environmental Analysis Checklist

	Yes	Maybe	No
1. Earth. Will the proposal result in:			
a. Unstable earth conditions or in changes in geologic substructures?			X
b. Disruptions, displacements, compaction or overcovering of the soil?	X		
c. Change in topography or ground surface relief features?	X		
d. The destruction, covering, or modification of any unique geologic or physical features?			X
e. Any increase in wind or water erosion of soils, either on or off the site?		X	
f. Changes in deposition or erosion of beach sands, or changes in siltation, deposition or erosion which may modify the channel of a river or stream or the bed of the ocean or any bay, inlet or lake?		X	
g. Exposure of people or property to geologic hazards such as earthquakes, landslides mudslides, ground failure, or similar hazards?			X
2. Air. Will the proposal result in:			
a. Substantial air emissions of deterioration of ambient air quality?		X	

	Yes	Maybe	No
b. The creation of objectionable odors?			X
c. Alteration of air movement, moisture, or temperature, or any change in climate, either locally or regionally?			X
3. Water. Will the proposal result in:			
a. Changes in currents, or the course of direction of water movements, in either marine or fresh waters?			X
b. Changes in absorption rates, drainage patterns, or the rate and amount of surface runoff?		X	
c. Alterations to the course or flow of flood waters?			X
d. Change in the amount of surface water in any water body?			X
e. Discharge into surface waters, or in any alteration of surface water quality, including but not limited to temperature, dissolved oxygen or turbidity?			X
f. Alteration of the direction or rate of flow or ground waters?			X
g. Change in the quantity of ground waters, either through direct additions or withdrawals, or through interception of an aquifer by cuts or excavations?			X

	Yes	Maybe	No
h. Substantial reduction in the amount of water otherwise available for public water supplies?			X
i. Exposure of people or property to water related hazards such as flooding or tidal waves?			X
4. Plant Life. Will the proposal result in:			
a. Changes in the diversity of species, or number of any species of plants (including trees, shrubs, grass, crops, and aquatic plants)?		X	
b. Reduction of the numbers of any unique, rare or endangered species of plants?			X
c. Introduction of new species of plants into an area, or in a barrier to the normal replenishment of existing species?		X	
d. Reduction in acreage of any agricultural crop?			X
5. Animal Life. Will the proposal result in:			
a. Change in the diversity of species, or numbers of any species of animals (birds, land animals including reptiles, fish and shellfish, benthic organisms or insects)?			X
b. Reduction of the numbers of any unique, rare or endangered species of animals?			X

	Yes	Maybe	No
c. Introduction of new species or animals into an area, or result in a barrier to the migration or movement of animals?			X
d. Deterioration to existing fish or wildlife habitat?			X
6. Noise. Will the proposal result in:			
a. Increases in existing noise levels?		X	
b. Exposure of people to severe noise levels?			X
7. Light and Glare. Will the proposal produce:			
a. New light and glare?			X
8. Land Use. Will the proposal result in:			
a. A substantial alteration of the present or planned land use of an area?			X
9. Natural Resources. Will the proposal result in:			
a. Increase in the rate of use of any natural resources?			X
10. Risk of Upset. Will the proposal involve:			
a. A risk of an explosion or the release of hazardous substances (including, but not limited to, oil, pesticides, chemicals, or radiation) in the event of an accident or upset conditions?			X

	Yes	Maybe	No
b. Possible interference with an emergency response plan or an emergency evacuation plan?			X
11. Population. Will the proposal alter:			
a. The location, distribution, density, or growth rate of the human population of an area?			X
12. Housing. Will the proposal affect:			
a. existing housing, or create a demand for additional housing?			X
13. Transportation/Circulation. Will the proposal result in:			
a. Generation of substantial additional vehicular movement?			X
b. Effects on existing parking facilities, or demand for new parking?			X
c. Substantial impact upon existing transportation systems?			X
d. Alterations to present patterns of circulation or movement of people and/or goods?			X
e. Alterations to waterborne, rail or air traffic?			X
f. Increase in traffic hazards to motor vehicles, bicyclist or pedestrians?			X
14. Public Services. Will the proposal have an effect upon, or result in a need for new or altered governmental services in any of the following areas:			
a. Fire protection?			X

	Yes	Maybe	No
b. Police protection?			X
c. Schools?			X
d. Parks or other recreational facilities?			X
e. Maintenance of public facilities, including roads?			X
f. Other governmental services?			X
15. Energy. Will the proposal result in:			
a. Use of substantial amounts of fuel or energy?			X
b. Substantial increase in demand upon existing sources of energy, or require the development of new sources energy?			X
16. Utilities. Will the proposal result in a need for new systems, or substantial alterations to the following utilities:			
a. Water			X
b. Sewer			X
17. Human Health. Will the proposal result in:			
a. Creation of any health hazard or potential health hazard (excluding mental health)?			X
b. Exposure of people to potential health hazards?			X

	Yes	Maybe	No
18. Aesthetics. Will the proposal result in:			
a. The obstruction of any scenic vista or view open to the public, or the creation of an aesthetically offensive site open to public view?			X
19. Recreation. Will the proposal result in:			
a. An impact upon the quality or quantity of existing recreational opportunities?			X
20. Cultural Resources. Will the proposal result in:			
a. The alteration of or the destruction of a prehistoric or historic archaeological site?			X
b. Adverse physical or aesthetic effects to as prehistoric or historic building, structure, or object?			X
c. Does the proposal have the potential to cause a physical change which would affect unique ethnic cultural values?			X
d. Will the proposal restrict existing religious or sacred uses with the potential impact area?			X

	Yes	Maybe	No
21. Mandatory Findings of Significance.			
a. Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	_____	_____	X
b. Does the project have the potential to achieve short-term, to the disadvantage of long-term, environmental goals? (A short-term impact on the environment is one which occurs in a relatively brief, definitive period of time while long-term impacts will endure well into the future.)	_____	_____	X
c. Does the project have impacts which are individually limited, but cumulatively considerable? (A project may impact on two or more separate resources where the impact on each resource is relatively small, but where the effect of the total of those impacts on the environment is significant.)	_____	_____	X

	Yes	Maybe	No
d. Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	_____	_____	X

E. DISCUSSION OF ENVIRONMENTAL EVALUATION

Refer to Initial Study Checklist Responses beginning on page 22.

F. DETERMINATION

On the basis of this initial evaluation:

I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared. _____

I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because the mitigation measures described on an attached sheet have been added to the project. A MITIGATED NEGATIVE DECLARATION WILL BE PREPARED. X

I find the proposed project may have a significant effect on the environment, and an Environmental Impact Report is required. _____

12 SEPTEMBER 1994
Date

Signature
For City of Rancho Palos Verdes
Director of Planning, Building, & Code Enforcement

INITIAL STUDY CHECKLIST RESPONSES

1. EARTH

Criteria

According to Appendix G of the State CEQA Guidelines, a project will normally have a significant effect on the environment if it will:

(q) Cause substantial flooding, erosion or siltation.
(r) Expose people or structures to major geologic hazards.

For the purposes of this Initial Study, major geological hazards are considered geologic conditions that cannot be overcome by design using reasonable construction and/or maintenance practices in future development that will occur with implementation of the proposed project.

Impacts

No (1a, 1d, and 1g)

1a. The proposed project will not result in unstable earth conditions or changes in geologic substructures due to the size and nature of this project. The purpose of the proposed project is to implement measures that will reduce driving forces in an active portion of Portuguese Bend landslide.

1d. The proposed project's cut and fill areas (A, B and C) have been previously graded. The project site does not contain unique geologic or physical features that would be destroyed by the implementation of the proposed project.

1g. The project will not expose people or property to geologic hazards due to the size and nature of the project. The purpose of the proposed project is to reduce landslide movement of the Portuguese Bend landslide. No structures are proposed as part of this project.

Maybe (1e and 1f)

1e. The proposed project may increase wind or water erosion of soils either on or off the site. This increase in erosion over existing conditions is anticipated to be caused by short-term grading activity. Implementation of Mitigation Measure 1, listed under Air Impacts (page 24), will reduce any wind erosion to a level of insignificance. Implementation of Mitigation Measure 6, listed under Plant Life Impacts (page 29), will reduce any water erosion to a level of insignificance.

1f. The project will not cause changes in deposition or erosion of beach sands, or changes in siltation, deposition, or erosion which may modify the channel of water within the Portuguese Bend landslide. Although the project site is located in the general vicinity of a USGS designated blueline stream, implementation of Mitigation Measures 6 and 7 listed under Plant Life impacts (page 29), will reduce any impacts to a level of insignificance.

Yes (1b and 1c)

1b. The project will have an effect on the disruption, displacement, and compaction of soil. This effect is not anticipated to be significant as the project is intended to move earth material within the Portuguese Bend Landslide to specific locations, which will reduce driving forces in an active portion of the Portuguese Bend landslide. The soil will not be overcovered with any impervious surface upon completion of the project.

1c. The project site consists of varied topography. Because grading will be required for project implementation, there will be minor changes in the existing topography. These changes are not considered to be significant as the existing topography has been previously disturbed and altered through previous grading activity.

2. AIR

Criteria

According to Appendix G of the State CEQA Guidelines, a project will normally have a significant effect on the environment if it will:

(x) Violate any ambient air quality standard, contribute substantially to an existing or projected air quality violation, or expose sensitive receptors to substantial pollutant concentration.

For the purposes of this Initial Study, actions that violate federal standards for criteria pollutants (i.e. primary standards designed to safeguard the health of people considered to be sensitive receptors while outdoors) and secondary standards (designed to safeguard human welfare) are considered significant adverse impacts. Additionally, actions that violate State standards developed by California Air Resources Board (CARB) or South Coast Air Quality Management District (SCAQMD), including thresholds for criteria pollutants are considered significant adverse impacts. Threshold criteria for criterion pollutants have been determined by the SCAQMD to be 550 pounds per day for carbon monoxide, 75 pounds per day for hydro-carbons, 100 pounds per day for nitrogen oxides and 150 pounds per day for PM_{10} (Source: Air Quality Handbook for Preparing Environmental Impact Reports, South Coast Air Quality Management

District, Revised April 1993). Emission increases from increased development within the airshed, even if they do not of themselves cause standards to be violated, should be considered cumulatively significant because they impede future regional attainment of clean air standards.

Impacts

No (2b and 2c)

2b. Due to the nature of the proposed project, no impacts to the creation of objectionable odors are anticipated. No uses are proposed that would result in the creation of these odors.

2c. The grading of the existing site would not alter air movement, moisture, temperature, or any changes in climate on a local or regional basis.

Maybe (2a)

2a. The proposed project will generate additional construction related emissions within the vicinity of the project. It is estimated that the project will require 4 to 5 scrapers for implementation. This will result in an increase in air emissions, but will not result in significant emissions based on the SCAQMD established threshold criteria. The project will result in grading activity that will result in the generation of PM_{10} emissions. These emissions are not considered to be significant based on SCQAMD daily thresholds. Mitigation Measures 1, 2 and 3 have been proposed to reduce PM_{10} emissions during grading activity. The proposed project will not result in any long-term air quality emissions. No long-term uses are proposed that would generate air emissions.

Mitigation Measure 1

1. Prior to grading, evidence shall be provided to the Department of Planning, Building and Code Enforcement that during grading, water shall be applied to the site routinely and comply with SCAQMD rule 403 to mitigate the impact of construction-generated dust particulates.

Mitigation Measure 2

2. Prior to grading, evidence shall be provided to the Department of Planning, Building and Code Enforcement that during grading, vehicle movement on any unpaved surface other than water trucks shall be terminated if wind speeds exceed 15 mph.

Mitigation Measure 3

3. Prior to grading, evidence shall be provided to the Department of Planning, Building and Code Enforcement that during grading, construction vehicles shall be equipped with proper emission control equipment to substantially reduce NO_x emissions.

3. WATER

Criteria

According to Appendix G of the CEQA Guidelines, a project will normally have a significant effect on the environment if it will:

(j) Cause substantial flooding, erosion or siltation;
(f) Substantially degrade water quality; and
(i) Interfere substantially with ground water recharge.

For the purposes of this Initial Study, a significant impact would occur if implementation of the proposed project would cause or expose people and property to substantial flooding and/or substantial degradation of water quality. This would include violation of water quality standards set by the State Water Resources Control Board (SWRCB) or Regional Water Quality Control Board (RWQCB).

Impacts

No (3a, 3c, 3d, 3e, 3f, 3g, 3h and 3i)

3a. The implementation of the proposed project will not change currents or direction of water movements in marine or fresh waters. The location of the project is such that these features will not be impacted.

3c. The proposed project will not result in alterations to the course or flow of flood waters. The project cut and fill areas are not located within a flood zone. The project does not proposed the construction of any structures - either habitable or non-habitable. The proximity of the project site is such that flood waters would not be affected by the proposed project. The project site is located within an area of minimal flooding.

3d. The project site is not located in the proximity of any bodies of water other than the Pacific Ocean. Because of the location of the site, the proposed project will not change the amount of surface water in any water body.

3e. The project will not introduce pollutants with the potential for degrading on-site or off-site surface water and or surface water quality.

3f./3g. Implementation of the project will not result in impacts to these issues. There is no significance of the groundwater as a source of drinking water or aquifer recharge.

3h. The proposed project will not create the need for large quantities of water. No water demand generating uses are proposed. The project will not substantially reduce the amount of water available to the public.

3i. The location of the project site is such that people and property will not be exposed to water related hazards. The project does not propose any uses that would subject people to water related hazards.

Maybe (3b)

3b. The project will slightly modify existing absorption rates and drainage patterns in this portion of the landslide area as a result of slightly modifying existing topographical conditions. These changes will not be significant due to the small change anticipated.

4. PLANT LIFE

Criteria

According to Appendix G of the CEQA Guidelines, a project will normally have a significant effect on the environment if it will:

(c) Substantially effect a rare or endangered species animal or plant or the habitat of the species;
(d) Interfere substantially with the movement of any resident or migratory fish or wildlife species; and
(t) Substantially diminish habitat for fish, wildlife or plants according to Assembly Bill 3158.

For purposes of this Initial Study, a significant impact would occur if implementation of the proposed project would result in a loss of rare or endangered plants or animals or cause substantial interference with resident or migratory fish or wildlife species.

Impacts

No (4b, 4d)

The project will not result in the reduction of the numbers of any unique, rare or endangered species of plants, or the reduction in acreage of any agricultural crop.

Maybe (4a, 4c)

The proposed project may result in the changes in the diversity of species and the barrier to the normal replenishment of existing species.

A biological survey titled , "Biological Assessment Rancho Palos Verdes Redevelopment Area", May 1994 (The Planning Center) has been prepared for the entire City of Rancho Palos Verdes Redevelopment Area (RDA) area. The report is available for review and inspection at the City of Rancho Palos Verdes Planning, Building, and Code Enforcement Department, 30940 Hawthorne Boulevard, Rancho Palos Verdes, 90274-5391. A copy of the report is included in Appendix B of this document. This report has been utilized in association with a supplementary project-specific field investigation in order to assess the impact of the proposed project on biological resources.

The biological significance of the impacts of this project have been determined through the preparation of a comprehensive biological survey in the project area, and supplemented through site specific field investigations.

The area where grading is proposed has a history of disturbances by agriculture, movement of the Portuguese Bend landslide, and previous grading operations directed at controlling the landslide. The proposed project site is comprised of three vacant non-contiguous areas (Areas A, B, and C) within the Portuguese Bend landslide.

The existing biological resources of the Redevelopment Study Area (which includes the proposed Portuguese Bend Grading Project area) are described in a Biological Assessment of the area (Brylski et al, 1994), which forms the basis of this section. The biological assessment lists and discusses the plant and animal communities and species of special concern in and around the project site, based on extensive field surveys and a literature review.

Vegetation and Wildlife

The proposed project site is occupied by a disturbed, ruderal plant community, and is bounded by five other plant communities: coastal sage scrub (including coastal sage scrub with a lemonadeberry ecotone subcomponent), lemonadeberry scrub (including lemonadeberry scrub with a grassland ecotoone subcomponent), quail bush scrub, grassland, and ornamental woodland. The species composition of these communities is discussed in the Biological

Assessment. While the plant communities in the area surrounding the project site are inhabited by a variety of wildlife, the disturbed, ruderal habitat that comprises the project sites (Areas A, B and C) is relatively sparse in wildlife, apparently because the soils in these areas are largely compacted as a result of previous grading operations, and provide little habitat for small mammals and sparse vegetation for other wildlife such as birds. The proposed project will impact less than 10 acres of disturbed, ruderal vegetation. This loss of vegetation would be less than significant. As vegetation is removed, the associated resident and migratory wildlife will be destroyed or will be displaced to adjacent habitat areas. The impact will be increased in magnitude and duration if it occurs in the spring when most wildlife are reproducing. These impacts of the proposed project would be small and less than significant. No perennial water sources, blue-line streams or wildlife movement corridors would be impacted.

Plants Species and Communities

Coastal sage scrub, a sensitive plant community, occurs in the project area, but would not be directly impacted by the proposed project.

Sensitive Plants Species and Communities

No federally listed plant species are found in the project site or in the larger RDA Study Area. The biological assessment revealed six sensitive plant species on the hillsides above the project sites (the Catalina mariposa lily, *Calochortus catalinae*; fleabane, *Erigeron foliosus*; whispering bells, *Emenanthe penduliflora*; sticky leaf, *Mentzelia micrantha*; owl's clover, *Castilleja exserta*; and annual, *Muhlenbergia micrantha*). Another species, the small flowered morning glory (*Convolvulus simulans*), occurs along Palos Verdes Drive South immediately south of the project site. None of these species, however, are located within the direct impact zone of the proposed grading project. None of these species will be impacted by the proposed project. The project has the potential to significantly impact sensitive plant species if designated construction routes are modified. To ensure that grading activities do not directly impact these species inadvertently through changes in construction travel routes, Mitigation Measures 4 and 5 are recommended.

Mitigation Measure 4

4. During grading, maximum effort shall be exercised to restrict vehicle transportation routes and trips to a minimum number. Earth-moving equipment shall be confined to the narrowest possible corridor during project implementation. Compliance with this measure shall be monitored by the Director of Planning, Building, and Code Enforcement.

Mitigation Measure 5

5. A pre-grading field visit shall be conducted with a qualified biologist and the project engineer to flag optimum construction routes and areas of sensitive vegetation. The purpose of this measure is to assist the workers in avoiding impacts to coastal sage scrub, and

sensitive plant species that are located in the project vicinity. The biological monitor will also assist the workers in avoiding non-sensitive habitats to the greatest degree possible. Compliance with this measure shall be monitored by the Director of Planning, Building, and Code Enforcement.

The project will result in the exposure of previously vegetated surfaces. The proposed grading activities has the potential to disturb adjacent sensitive vegetated areas through erosion and siltation. Mitigation Measures 6 and 7 have been proposed to reduce impacts related to this issue to a level of insignificance.

Mitigation Measure 6

6. Erosion control plans shall be submitted to the City for review by the Director of Public Works and a qualified biologist. The Director of Public Works and biologist will examine the plan to insure that standard engineering practices are employed to reduce excess disturbance and sedimentation during implementation of the proposed project. The review will determine if proposed measures are sufficient to reduce sediment loads to adjacent vegetated areas and/or the ocean. Additional measures shall be proposed if the proposed measures are not sufficient. During the construction period the biologist will periodically monitor the site to insure that the least damaging construction procedures are used near existing vegetation. Compliance with this measure shall be monitored by the Director of Planning, Building, and Code Enforcement.

Mitigation Measure 7

7. Post grading erosion control measures shall include introduction of rapid-developing, soil-anchoring groundcover of native plant species to exposed cut and fill slopes. Compliance with this measure shall be verified by the Director of Planning, Building, and Code Enforcement.

5. ANIMAL LIFE

Criteria

According to Appendix G of the CEQA Guidelines, a project will normally have a significant effect on the environment if it will:

(c) Substantially effect a rare or endangered species animal or plant or the habitat of the species;
(d) Interfere substantially with the movement of any resident or migratory fish or wildlife species; and
(t) Substantially diminish habitat for fish, wildlife or plants according to Assembly Bill 3158.

For purposes of this Initial Study, a significant impact would occur if implementation of the proposed project would result in a loss of rare or endangered plants or animals or cause substantial interference with resident or migratory fish or wildlife species.

Impacts

No (5a, b, c, d)

The proposed project will not result in the change in diversity of species, or numbers of any species of animals, reduction of the numbers of any unique, rare or endangered species of animals, or introduction of new species or animals into an area, or result in a barrier to the migration or movement of animals.

Sensitive Animal Species

Three federally listed animal species occur in the project vicinity: 1) The Peregrine falcon (*Falco peregrinus*). The project site does not contain nesting habitat for this species, and the project would not directly or indirectly impact potential nesting habitat along the coastline. The project would not alter the abundance or availability of prey. 2) the Pacific pocket mouse (*Perognathus longimembris pacificus*) occurs in coastal sage scrub community on sandy substrate. The compacted soils within the project site are not suitable for this species. The proposed project would not impact this species. 3) The California gnatcatcher (*Polioptila californica californica*), a Threatened species. The proposed project would not directly impact coastal sage scrub habitat where this species' foraging and nesting activities are concentrated. Potential indirect impacts of disturbance to nesting activity will be mitigated to a less than significant level by Mitigation Measure 8. To ensure that construction activities do not directly impact these species inadvertently through changes in construction travel routes, Mitigation Measures 4 and 5, listed under Plant Life Impacts (pages 28 and 29), are recommended.

Four federal candidate list 2 species occur in the project area. These consist of the San Diego cactus wren, San Diego desert woodrat, San Diego pocket mouse, and the black tailed jackrabbit.

San Diego cactus wren (*Campylorhynchus bruneicapillus cousei*).

The proposed project would not directly impact coastal sage scrub/cactus scrub habitat where this species' foraging and nesting activities are concentrated. Potential indirect impacts of disturbance to nesting activity will be mitigated to a less than significant level by Mitigation Measure 8. To ensure that construction activities do not directly impact these species inadvertently through changes in construction travel routes, Mitigation Measures 4 and 5 listed under Plant Life Impacts (pages 28 and 29), are recommended.

San Diego desert woodrat (*Neotoma lepida intermedia*).

The San Diego desert woodrat is a common resident of the Study Area. However, this species does not occur in the disturbed, ruderal habitat found in Areas A, B or C, and will not be impacted by the proposed grading project.

San Diego pocket mouse (*Chaetodipus fallax fallax*).

The San Diego pocket mouse potentially occurs in the project site, although it was not recorded during a preliminary live-trapping survey of parts of the area. This species may forage in the disturbed, ruderal habitat found in the project site, but the soils are too compacted to provide denning habitat. This species will not be adversely impacted by the proposed project.

Black-tailed jackrabbit (*Lepus californicus bennettii*).

The Black-tailed jackrabbit occurs in the project vicinity, but will not be impacted by the small amount of habitat loss.

Mitigation Measure 8

8. No grading or construction shall occur during the mating/breeding/nesting season for the California gnatcatcher and coastal cactus wren (mid-February through July). Compliance with this measure shall be verified by the Director of Planning, Building, and Code Enforcement.

6. NOISE

Criteria

According to Appendix G of the CEQA Guidelines, a project will normally have a significant effect on the environment if it will:

(p) Substantially increase ambient noise levels adjacent to the project.

For purposes of this Initial Study, the potential for significant impact also exists where the community noise standards are violated on or off site due to the buildout of a project.

Impacts

No (6b)

6b. The proposed project will not result in the exposure of people to severe noise levels. No long-term noise generating uses are proposed.

Maybe (6a)

6a. The proposed project will result in a short-term increase in noise levels from machinery due to the proposed grading activities. This increase is not considered to be significant due to the short-term grading period anticipated. A majority of the grading operations will take place away from existing residential areas. Construction vehicle travel routes will be located within the project site away from existing residential. Fill Area C is located within the vicinity of existing residences. These residences may experience a short-term increase in noise levels. Mitigation Measures 10 and 11 are proposed to reduce potential impacts to a level of insignificance.

Mitigation Measure 10

10. Prior to grading, the applicant shall provide written proof to the Director of Planning, Building, and Code Enforcement from the project construction and grading crew that the hours of construction and grading shall be limited to the days of Monday through Saturday only, between the hours of 7 a.m. and 5 p.m., no construction will be conducted on Sunday's and holidays except during emergency situations as defined by the City's Municipal Code.

Mitigation Measure 11

11. Prior to grading, the applicant shall ensure that grading and construction vehicles and equipment shall be equipped and maintained with effective muffler systems, subject to approval of the Director of Public Works.

7. LIGHT AND GLARE

Criteria

According to Appendix G of CEQA Guidelines, a project will normally have a significant effect on the environment if it will:

(b) Have a substantial, demonstrable negative aesthetic effect.

For the purposes of this Initial Study, a significant light and glare impact will occur if implementation of the proposed project would result in a substantial increase in light and glare in undeveloped areas of the project site.

Impacts

No (7a)

7a. The proposed project will not create a new source of light and glare to the area due to the nature of the project. The project will not require lighting and will not have reflective surfaces. No structures or buildings are proposed as part of the project.

8. LAND USE

Criteria

According to Appendix G of the CEQA Guidelines, a project will normally have a significant effect on the environment if it will:

(a) Conflict with adopted environmental plans and goals of the community where it is located; and
(u) Disrupt or divide the physical arrangement of an established community.

For the purposes of this Initial Study, a significant impact would occur if implementation of the proposed project would result in inconsistencies with the adopted goals and policies of the City of Rancho Palos Verdes General Plan or Zoning Ordinances. Additionally, a significant impact would occur if implementation of the project would create incompatibilities of land use on-site or with adjacent land uses off-site.

Impacts

No (8a)

8a. Due to the nature of the proposed project, no substantial alteration of the present or planned land use will occur. The proposed project will not implement new land uses or modify existing land uses. The proposed grading areas are currently undeveloped and will remain undeveloped with project implementation.

9. NATURAL RESOURCES

Criteria

According to Appendix G of the CEQA Guidelines, a project will normally have a significant effect on the environment if it will:

(n) Encourage activities which result in the use of large amounts of fuel, water, or energy; and

(o) Use fuel, water, or energy in a wasteful manner.

For purposes of this Initial Study, a significant impact would occur if implementation of the proposed project would encourage activities which would result in the use of a large amount of fuel, water, or energy or the use of fuel, water, or energy in a wasteful manner.

Impacts

No (9a)

9a. Due to the nature of the proposed project, no substantial increase to the rate of use of any natural resources is anticipated. Project implementation will require the use of fuel and energy (refer to 15a and 15b on page 38). This grading activity will not require abnormally high amounts of energy.

10. RISK OF UPSET

Criteria

According to Appendix G of the CEQA Guidelines, a project will normally have a significant effect on the environment if it will:

(v) Create a potential public health hazard or involve the use, production or disposal of materials which pose a hazard to people or animal or plant populations in the area affected; and
(z) Interfere with emergency response plans or emergency evacuation plans.

For purposes of this Initial Study, a significant impact would occur if implementation of the proposed project would result in disposal of waste inconsistent with the City of Rancho Palos Verdes standards. In addition, the potential for significant impacts would occur if project implementation would result in an interference with the City of Rancho Palos Verdes safety element documents.

Impacts

No (10a and 10b)

10a./ 10b. The proposed project site will not involve the use of hazardous substances which could cause a risk of upset. Additionally, the project will not create an interference with an emergency response or evacuation plan. Please refer to Appendix A of this document for the Hazardous Waste and Substances Statement.

11. POPULATION

Criteria

According to Appendix G of CEQA Guidelines, a project will normally have a significant effect on the environment if it will:

(a) Conflict with adopted environmental plans and goals of the community where it is located;
(k) Induce substantial growth or concentration of population; and
(m) Displace a large number of people.

For purposes of this Initial Study, a significant change in the City's employment base is considered a significant socioeconomic impact; any change in population density, distribution, or growth rate significantly above what is forecasted in adopted City plans and policies is considered a significant impact. In addition, any inconsistency with the General Plan Housing Element policies of the Southern California Association of Governments (SCAG) RHNA is considered a significant impact.

Impacts

No (11a)

11a. The proposed project will not alter the location, distribution, density, or growth rate of the population in the area. The project does not proposed uses that would result in any increase in population.

12. HOUSING

Criteria

According to Appendix G of CEQA Guidelines, a project will normally have a significant effect on the environment if it will:

(a) Conflict with adopted environmental plans and goals of the community where it is located;
(k) Induce substantial growth or concentration of population; and
(m) Displace a large number of people.

For purposes of this Initial Study, a significant change in the City's employment base is considered a significant socioeconomic impact; any change in population density, distribution, or growth rate significantly above what is forecasted in adopted City plans and policies is

considered a significant impact. In addition, any inconsistency with the General Plan Housing Element policies of the SCAG RHNA is considered a significant impact.

Impacts

No (12a)

12a. The proposed project will not affect existing housing or create a demand for additional housing. The project does not proposed any uses that will create additional population in the area. No residential units are proposed by this project.

13. TRANSPORTATION/CIRCULATION

Criteria

According to Appendix G of the State CEQA guidelines a project will normally have a significant effect on the environment if it will:

(l) cause an increase in traffic which is substantial in relation to the existing traffic load and capacity of the street system.

For purposes of this Initial Study, according to the City of Rancho Palos Verdes General Plan Final EIR, a traffic increase is considered a significant impact if LOS C could not be achieved for the primary, secondary, and local arterials and/or the intersections if LOS D could not be achieved for the State highways and major arterials and/or the intersections impacted by the proposed project within the community. Additionally, impacts to internal circulation and bicycle and pedestrian safety are considered a significant impact if the proposed roadways and trails do not conform to City standards.

Impacts

No (13a, 13b, 13c, 13d, 13e and 13f)

13a. The proposed project will not generate significant additional vehicular traffic. The project does not propose uses that will generate long-term vehicular traffic.

13b. The proposed project will not result in impacts to parking facilities. The project will not generate a demand for parking.

13c. The proposed project will not impact the existing or planned transportation systems. Due to the nature of the project, no impacts to this issue are anticipated.

13d. The project is not anticipated to have a significant effect on present movement patterns of people and/or goods as the construction vehicles will utilize internal roadways to transport earth material from the cut area to the fill areas. These roadways are existing private dirt roads, and do not cross existing or proposed public roadways.

13e. Due to the size and location of the project site, waterborne, rail or air traffic will not be altered as a result of the proposed project.

13f. The proposed project will not increase traffic hazards in the area as the project is located away from public roadways.

14. PUBLIC SERVICES

Criteria

According to Appendix G of the CEQA Guidelines, a project will normally have a significant effect on the environment if it will:

(e) Breach published national, state, or local standards relating to solid waste or litter control;
(n) Encourage activities which result in the use of large amounts of fuel, water, or energy;
(o) Use fuel, water, or energy in a wasteful manner; and
(z) Interfere with emergency response plans or emergency evacuation plans.

Additionally, for the purposes of this Initial Study, expansion of existing services due to project demand does not constitute a significant impact unless the provider anticipates great difficulty in providing increased service.

Impacts

No (14a, 14b, 14c, 14d, 14e, and 14f)

It is anticipated that the proposed project will not have an affect on or result in the need for new or altered public services. The proposed grading project will not require maintenance or extension of public services to the area.

15. ENERGY

Criteria

According to Appendix G of the CEQA Guidelines, a project will normally have a significant effect on the environment if it will:

(n) Encourage activities which result in the use of large amounts of fuel, water, or energy; and
(o) Use fuel, water, or energy in a wasteful manner.

For the purposes of this Initial Study, a significant impact would occur if implementation of the proposed project would encourage activities which would result in the use of large amounts of fuel, water, or energy or the use of fuel, water, or energy in a wasteful manner.

Impacts

No (15a and 15b)

15a./ 15b. The proposed project will not use substantial amounts of fuel or energy. Energy uses associated with the grading activity is considered to be minimal. The project will not substantially increase the demand upon existing sources or require new sources of energy.

16. UTILITIES

Criteria

Appendix G of the CEQA Guidelines serves as a guideline/general example of impacts that are considered to have a significant effect on the environment. A project will normally have a significant effect on the environment if it will:

(e) Breach published national, state, or local standards relating to solid waste or litter control;
(n) Encourage activities which result in the use of large amounts of fuel, water, or energy;
(o) Use fuel, water, or energy in a wasteful manner; and

Additionally, for the purposes of this Initial Study, expansion of existing services due to project demand does not constitute a significant impact unless the provider anticipates great difficulty in providing increased service.

Impacts

No (16a and 16b)

16a./ 16b. The proposed grading project will not require new systems or substantial alterations to utility service. The project does not propose uses that would require the installation or modification of these services. Additionally, the project is not located in an area where these facilities are located.

17. HUMAN HEALTH

Criteria

According to Appendix G of the CEQA Guidelines, a project will normally have a significant effect on the environment if it will:

(v) Create a potential public health hazard or involve the use, production or disposal of materials which pose a hazard to people or animal or plant populations in the area affected; and
(z) Interfere with emergency response plans or emergency evacuation plans.

For purposes of this Initial Study, a significant impact would occur if implementation of the proposed project would result in disposal of waste inconsistent with the City of Rancho Palos Verdes standards. In addition, the potential for significant impacts would occur if project implementation would result in an interference with the City of Rancho Palos Verdes standards.

Impacts

No (17a and 17b)

17a./ 17b. The proposed project will not create any potential health hazard. The type of activity involved with this project will not expose people to any potential health hazards.

18. AESTHETICS

Criteria

According to Appendix G of CEQA Guidelines, a project will normally have a significant effect on the environment if it will:

(b) Have a substantial, demonstrable negative aesthetic effect.

For purposes of this Initial Study, a significant impact would occur if implementation of the proposed project would result in an obstruction of any scenic vista or view open to the public or result in the creation of an aesthetically offensive site open to public view.

Impacts

No (18a)

18a. The proposed project will not result in the obstruction of any scenic vista or view open to the public, or the creation of an aesthetically offensive site open to public view. The

proposed project is a grading project. Due to the minimal amount of grading proposed, and the location of the project site, no impacts to this issue are anticipated. The graded areas will be revegetated upon project completion as required in Mitigation Measure 7 listed under Plant Life Impacts (page 26).

19. RECREATION

Criteria

According to Appendix G of CEQA Guidelines, a project will normally have a significant effect on the environment if it will:

(w) Conflict with established recreational, educational, religious, or scientific uses of the area.

For purposes of this Initial Study, conflicts with the City of Rancho Palos Verdes General Plan are considered significant impacts on Recreation and Open Space Plans. Additionally, a substantial increase in the demand for new recreational facilities and/or expansion of existing programs beyond planned capacities is considered a significant recreational impact.

Impacts

No (19a)

19a. The proposed project will not impact the quality of existing recreational opportunities. The project is not located in an area of existing recreational use, or designated for recreational activity. Additionally, no uses are proposed that would result in an increase or the demand for recreational uses.

20. CULTURAL RESOURCES

Criteria

According to Appendix G of CEQA, a project will normally have a significant effect on the environment if it will:

(j) disrupt or adversely affect a prehistoric or historic archaeological site or a property of historic or cultural significance to a community or ethnic social group; or a paleontological site except as a part of a scientific study.

For purposes of this Initial Study, and in accordance with Appendix K of CEQA, an "important" archaeological resource is defined as one which:

1) is associated with an event or person of:

   a) recognized significance in California or American history, or
   b) recognized archaeological importance in prehistory;

2) can provide information which is both of demonstratable public interest and useful in addressing scientifically consequential and reasonable or archaeological research questions;

3) has a special or particular quality such as oldest, best example, largest, or last surviving example of its kind;

4) is at least 100 years old and possess substantial stratigraphic integrity; or

5) involves important research questions that historical research has shown can be answered only with archaeological methods.

Because paleontological resources are largely a buried resource, there is no way to accurately predict what fossils are present within a site or their individual significance to the scientific community before they are discovered. For the purposes of this Initial Study, all paleontological resources are considered to be significant.

Impacts

No (20a-d)

20a. The characteristics on the project site indicate that no significant cultural resources exist on the project site. As stated previously, Areas A, B and C proposed for cut and fill activity have been previously graded.

20b. The proposed project will not result in adverse physical or aesthetic effects of a prehistoric or historic building, structure, or object. No such resources exist on-site.

20c. The proposed project will not cause physical change that would affect unique ethnic cultural values. No such resources have been identified in the project area.

20d. The proposed project will not restrict existing religious or sacred uses within the potential impact area. No such uses have been identified in the project area.

MITIGATED NEGATIVE DECLARATION
CITY OF RANCHO PALOS VERDES

Name of Project: Portuguese Bend Grading Project

Location: Portuguese Bend landslide area, City of Rancho Palos Verdes,

Entity of Person Undertaking Project:

City of Rancho Palos Verdes
30940 Hawthorne Boulevard
Rancho Palos Verdes, California 90274

Project Description:

The proposed project consists of the removal of approximately 50,000 cubic yards of material from an active portion of the Portuguese Bend landslide area and the re-distribution of the earth material to two (2) nearby previously graded/disturbed sites within the landslide area. The purpose of the grading is to reduce driving forces in an active portion of the Portuguese Bend landslide.

Finding:

Pursuant to the authority and criteria contained in the California Environmental Quality Act (CEQA) and the Local CEQA Guidelines of the City of Rancho Palos Verdes, the City of Rancho Palos Verdes (Lead Agency) has analyzed the project and determined that there is no substantial evidence, in light of the whole record before the Lead Agency that the project as approved, may have a significant effect on the environment.

Initial Study:

An initial study of this project was undertaken and prepared in accordance with the City's local environmental guidelines for the purpose of ascertaining whether this project might have a significant effect on the environment. A copy of such Initial Study is attached hereto and by reference incorporated herein. Such Initial Study documents reasons to support the above finding.

Date: 12 SEPTEMBER 1994

Bret Bernard, AICP
Director of Planning, Building, and
Code Enforcement

SOURCES CONSULTED

PERSONS CONTACTED

City of Rancho Palos Verdes

Mr. Bret Bernard
Director of Planning, Building, and
Code Enforcement
City of Rancho Palos Verdes

Mr. Joel Rojas
Senior Planner
City of Rancho Palos Verdes

Mr. Phil Brylski, Ph.D. - Biology
The Planning Center

Mr. Charles Abbott
Ms. Cathy Rosen
Charles Abbott & Associates

REFERENCES

1. USGS Map (7.5 Minute/ (3) San Pedro, Redondo Beach & Torrance)
2. City of Rancho Palos Verdes. February 20, 1991. Coastal and Near Coastal Land Use Summary
3. City of Rancho Palos Verdes Zoning Map
4. City of Rancho Palos Verdes. January 1990. Development Code
5. City of Rancho Palos Verdes. April 1988. General Plan
6. City of Rancho Palos Verdes General Plan EIR
7. City of Rancho Palos Verdes, January 1990. Zoning Ordinance
8. Austin-Foust Associates. May 1991. Portuguese Bend Traffic Analysis
9. Bissel, R. 1992. Archaeological Site Record, on file at the Archaeological Survey, University of California, Los Angeles.
10. Letter by Leighton & Associates, Inc. dated January 3, 1990 Titled Proposed Geotechnical Standards for Removal of Lands of Portuguese Bend and Abalone Cove, City of Rancho Palos Verdes Report by Leighton & Associates, Inc. dated November 30, 1989. Geotechnical Remediation Study of the Active Portuguese Bend Landslide, a Portion of Parcel 13, Rancho Palos Verdes, California, Project Number 1881922-07.
11. Biological Assessment Rancho Palos Verdes Redevelopment Area, dated May 1994, The Planning Center.

APPENDIX A

HAZARDOUS WASTE AND SUBSTANCES STATEMENT

RANCHO PALOS VERDES

HAZARDOUS WASTE AND SUBSTANCES STATEMENT

The California Environmental Protection Agency (CAL/EPA) has compiled lists of Hazardous Waste and Substances Sites for the entire State of California. Although the current list received from CAL/EPA on Nov. 4, 1992 for the City of Rancho Palos Verdes has been reproduced below, you should be aware that these lists are revised from time to time. Pursuant to Government Code Section 68962.5, before the City can accept this application as complete, the applicant must consult the list and indicate whether the project and any alternatives are located on a site which is included on any such list, and shall specify any list.

IMPACT CITY: RANCHO PALOS VERDES

				ZIP
CREST ROAD (5656)				
Crest Road Union		HWIS	CAL 000017987	
Unocal SVC STA #5894		HWIS	CAD 981647126	
Unocal Station #5894		LTANK		
HIGHRIDGE (28732)				SITES 90274
Steve's Union SVC		HWIS	CAD 982314528	
Unocal Corp. SS #5848		UTANK	6434	
Unocal SS #5848		LTANK		
PALOS VERDES DRIVE (31200)				SITES 90274
Schapen Union		HWIS	CAD 982314595	
Unocal SVC STA #7109		HWIS	CAD 981644651	
Golden Cove Unocal		HWIS	CAL 000017327	
Golden Cove Unocal		HWIS	CAL 000018451	
1x Golden Cove Unocal		HWIS	CAC 000177245	
Unocal Corp. SS #7109		UTANK	11074	
Unocal Station #1709		LTANK		
WESTERN AVE. (29421)				SITES 90732
Western Cleaners		HWIS	CAL 000018451	
Western Cleaners		HWIS	CAL 000026468	
Mobil Oil Corp.		UTANK	3558	
Mobil Station		LTANK		
29421 WESTERN AVE. S.	(NO STREET NBR)			SITES 90731
Chevron SS #9-8987		LTANK		
31200 PALOS VERDES DRIVE WEST	(NO STREET NBR)			SITES 90274
Unocal S.S. #7109		LTANK		
6560 PALOS VERDES DRIVE SOUTH	(NO STREET NBR)			SITES 90274
Chevron Station		LTANK		
5500 PALOS VERDES DRIVE SOUTH	(NO STREET NBR)			SITES 90274
Marineland		LTANK		

In the event that the project site and any alternatives proposed in the application are not contained on the CAL/EPA lists, please certify that fact as provided below.

I have consulted the lists compiled pursuant to Section 65962.5 of the Government Code and hereby certify that the development project and any alternatives proposed in this application are not contained on these lists.

City of Rancho Palos Verdes — *(applicant)*

(signature)

12 SEPTEMBER 1994 — *(date)*

APPENDIX B

BIOLOGICAL ASSESSMENT
RANCHO PALOS VERDES REDEVELOPMENT AREA

Biological Assessment
Rancho Palos Verdes Redevelopment Area

Prepared for:

Mr. Fred Talarico
EDAW, Inc.
1920 Main Street, Suite 450
Irvine, California 92714

Prepared by:
Phillip Brylski, Ph.D.
Angelika Brinkmann-Busi
Jonathan Atwood, Ph.D.
Rudi Mattoni, Ph.D.

May 1994

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1. The Rancho Palos Verdes Study Area

Characteristics of the Site

The Redevelopment Study Area (RDA) comprises about 825 acres in the Portuguese Bend landslide area of the Palos Verdes peninsula. The project regional and vicinity maps are shown in Figures 1 and 2. Figure 3 is an aerial photograph of the Study Area. The Study Area spans from the beach nearly to the spine of the Palos Verdes Hills, an elevational range of about 1,200 feet, and is dissected by eight relatively steep canyons. The major canyons are (from west to east): Kelvin, Altamira, Portuguese, Paintbrush, and Klondike Canyons. Eight seasonal blue-line streams that are dry most of the year run south through the Study Area. A perennial spring is found in Kelvin Canyon. The Study Area spans a maximum of about 1.65 miles wide (east to west) and 1.2 miles deep (south to north). 17 plant communities have been identified in the Study Area: coastal sage scrub (3 categories), coastal bluff scrub (1), cactus scrub (3), lemonadeberry scrub (2), quail bush scrub (1), *Baccharis* grassland, grassland (largely nonnative), disturbed or ruderal, ornamental woodland, burned areas, developed areas, and areas nearly free of vegetation.

The level parts of the Study Area (elevational range from 200 to 400 feet) consist of the graded toe of the Portuguese Bend landslide and the residential community bounded by Portuguese Canyon to the east and Narcissa Road to the west. The ornamental woodland and disturbed or ruderal habitats are found in these level areas. The natural vegetation is found on the surrounding hillsides and canyons.
The south slope of the Palos Verdes Hills, which consists of the Study Area and additional adjoining open space to the west and east, is the largest and potentially most important of the open space areas remaining on the peninsula. The Study Area includes two former Los Angeles County Significant Ecological Areas (SEA's): the Portuguese Bend Landslide and part of the offshore, intertidal and bluff areas of the Palos Verdes Peninsula coastline. These designations reflect the ecological importance of these areas due to these large, contiguous area of natural vegetation and the presence of sensitive and unique biological resources. The Portuguese Bend Landslide Area and the Palos Verdes Coast were also designated areas of priority I in the South Coast Region, determined in the study "The Coastal Land Environment In The South Coast Region by the California Coastal Zone Conservation Commission (1974).

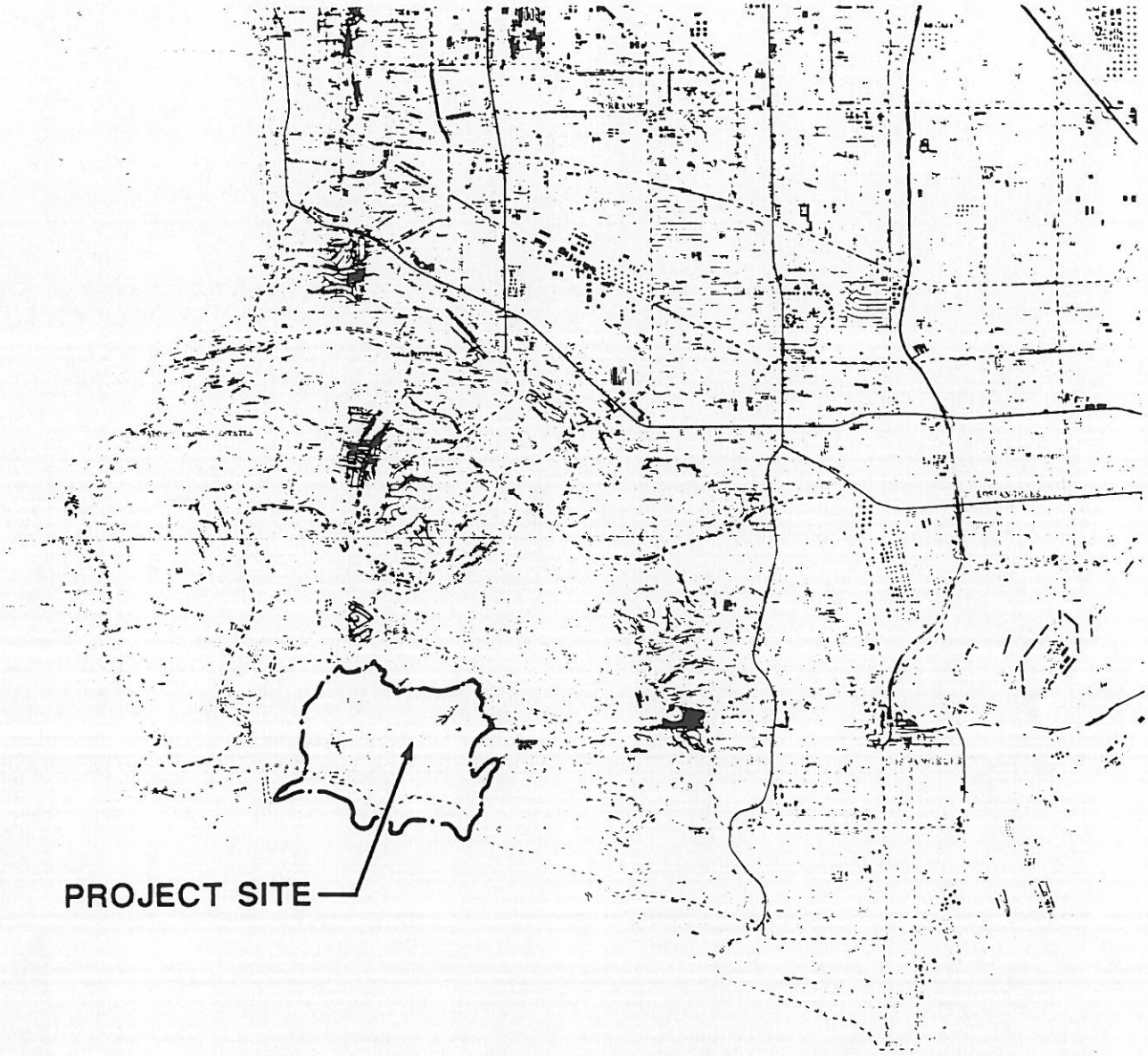
Characteristics of the Surrounding Area

The Palos Verdes Peninsula encompasses 15 cities. 10 cities or towns (Manhattan Beach, Redondo Beach, Hermosa Beach, Lawndale, Torrance, Carson, Gardena, Harbor City, Lomita, Wilmington, and Los Angeles) form an urbanized matrix north of the natural open space found in Palos Verdes Estates, Rancho Palos Verdes, Rolling Hills, and Rolling Hills Estates. San Pedro is a largely urbanized, but includes the U.S. Naval Reservation, part of which (between Gaffey Street and Western Avenue) contains significant biological resources. The peninsula rises abruptly from the ocean, with shear cliffs and the Palos Verdes Hills running from Malaga Cove (Palos Verdes Estates) south and east to Point Fermin (San Pedro). The Palos Verdes Hills include the highest elevations on the peninsula, ranging from about 1,200 feet in Palos Verdes Estates to about 1,460 feet at San Pedro Hill in Rancho Palos Verdes.

Although there is no comprehensive study on the natural open space areas and coastal sage scrub community of the Palos Verdes Peninsula available, there appear to be at most several thousand acres

remaining. These areas, loosely defined and categorized include: 1) Malaga Canyon and Cove, including parts of the Palos Verdes Country Club; 2) Agua Amarga Canyon; 3) the coastal bluff from Long Point to Point Fermin; 4) the canyons on the north slope of the Palos Verdes Hills (e.g., Sepulveda Canyon, Bent Spring Canyon, and George F Canyon); 5) the U.S. Naval Reservation (between Gaffey Street and Western Avenue) and part of Miraleste Canyon in San Pedro; 6) the south slope of the Palos Verdes Hills in Rancho Palos Verdes and Rolling Hills. Each of these areas possess significant biological resources, the importance of which is increased by past and ongoing habitat fragmentation on the peninsula. These areas contain rare, threatened, and endangered plants and animals, including the coastal race of the cactus wren and the recently federally listed California gnatcatcher. One of the areas (the Naval Reservation between Gaffey Street and Western Avenue) is the only known site of the Palos Verdes blue butterfly, a species previously thought to be extinct and re-discovered in the course of baseline surveys for this study.

VICINITY MAP



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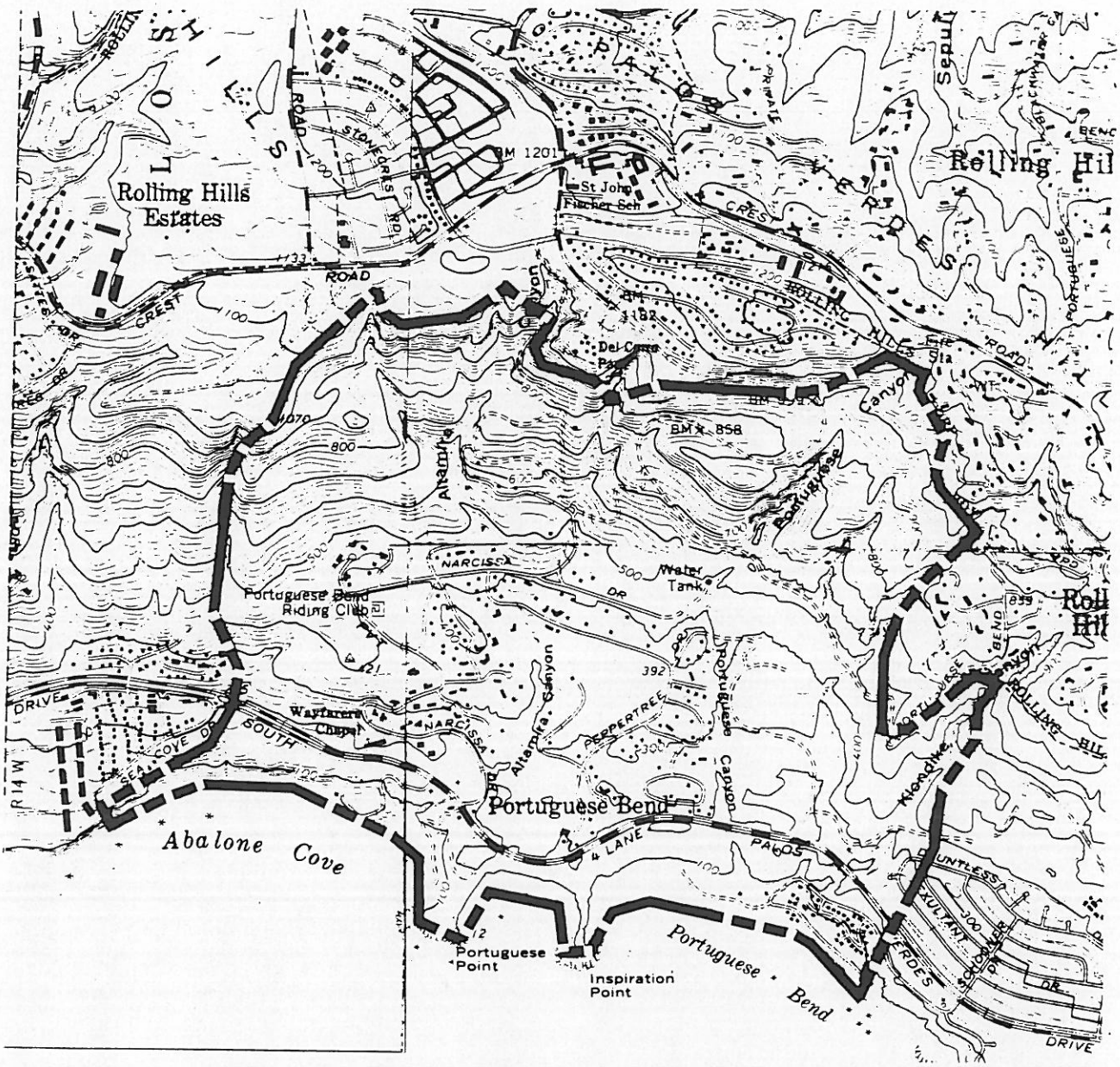

AERIAL PHOTO

1"=1450' 12-3-93
SOURCE: AIR PHOTO SERVICES, INC.

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2. Methods

This biological assessment is based on a literature review and field surveys of the Study Area and, in some cases of surrounding areas. In some cases, individuals that had conducted previous field surveys were contacted to clarify their findings. The literature includes element reports from the California Department of Fish and Game's Natural Diversity Data Base (DFG, 1994), which provide a general background source for species of concern in the region, previously published EIRs in the project region, and relevant scientific literature.

Plants-- The botanical study was prepared in mid- to late-winter, and therefore is not based on spring surveys for 1994. The plant communities map was drawn using a color aerial photo (scale, 1" = 500'; dated 3 December 1994). The vegetation classification of the Study Area is based on Holland's (1986) description of terrestrial plant communities. The plant list and the map showing the locations of sensitive plant species are based largely on observations made between 1991 and 1993, while hiking on established trails. Additional spring surveys could be expected to identify additional plant species and sensitive plant locations. *Astragalus trichopodus lonchus* was in bloom and setting fruits during the ground-truth surveys from January 29 to February 25, 1994.

The NDDB list of special plants (February 1994), and the revised CNPS Inventory of rare and endangered vascular plants of California were used to determine the plant species of concern. Additionally, plants were considered that should be on a watch list for Los Angeles County. A list of rare and unusual plants of the peninsula is also included.

To differentiate and evaluate the quality of the coastal sage scrub, the shrub cover was originally roughly estimated during the field work and classified in 5 categories: I, > 75 percent; II, 50 - 75 percent; III, 30 - 50 percent; IV, 15 - 30 percent; V, < 15 percent. The dominant or codominant species which occurred in some subunits of coastal sage scrub were noted.

Invertebrates-- For the invertebrate surveys, Rudi Mattoni, Ph.D. of Agresearch Inc. initiated systematic collections from a series of pitfall traps placed at 8 stations representing different plant community types across the Palos Verdes peninsula. Both pitfall and yellow pan traps were used. The pitfalls are quart wide mouth plastic containers set with the lip at ground level and covered with an approximate 6 inch square plywood roof. The roof is on legs to leave an approximate one inch space above the ground level. The yellow pans are pint-wide mouth plastic containers, spray painted bright yellow set in open spaces. Both pans are filled with about 100 cc of ethylene glycol as a preservative. 3 pitfall traps were set at each station. The invertebrates collected in the traps were collected at two week intervals. Yellow pans were set out in selected locations because they are routinely vandalized if they are located in areas of human foot traffic. The locations of the trap stations are described in the appendix.

Although data collection was limited to two dates at the time this report was prepared, the data serve as an important starting point for long term description of the region's invertebrate fauna, an integral part of the biota. They also present an opportunity as a baseline for monitoring change over time.

Reptiles and Amphibians-- The California Natural Diversity Database and other herpetological literature sources were consulted for records on amphibians and reptiles that occur on the Palos Verdes Peninsula. A field survey for amphibians and reptiles was conducted in the Study Area for 12 person-days (96 hours

of surveying) from 5 to 7 May 1994 and on 10 May 1994 by Victor Horchar Biological Consulting, a firm specializing in herpetology. These surveys were directed at identifying all amphibians and reptiles in the Study Area. A focused survey for the San Diego coast horned lizard (*Phrynosoma coronatum blainvillei*) was conducted in the lower Portuguese landslide area and in Altamira Canyon and a focused survey for amphibians was conducted along the streamcourse in Kelvin Canyon.

Mammals-- A list of mammals expected or known to occur in the Study Area was compiled using literature sources (Hall, 1981) and museum records from the Museum of Vertebrate Zoology, University of California, Berkeley and the Los Angeles County Museum of Natural History. A preliminary live-trapping survey for small mammals (rodents) was conducted by Jesus Maldonado on 18 and 22 April 1994, as well as various earlier dates. The live-trapping survey was conducted along transects in the canyon (Kelvin Canyon, Paintbrush Canyon, Portuguese Canyon) and flatland areas of the Study Area. Each transect or cluster contained between 5 and 10 live-traps. Sherman live-traps (3 x 3.5 x 9 inches, 30 gauge galvanized steel) were baited with wild bird seed and rolled oats. The traps were opened each day after 1700 hours and checked each morning before 0900 hours. Individuals were removed from the live-trap, identified, examined, and released unharmed. Several species of small mammals that were not captured in the live-traps were detected as occurring in the Study Area because their bone remains were identified in a group of owl pellets.

The live-trapping survey was designed to provide a preliminary list of small mammals in the Study Area. The survey was not conducted in habitat that was considered likely to be occupied by the Pacific pocket mouse, a species listed as endangered by the U.S. Fish and Wildlife Service. The Pacific pocket mouse, which occurs in association with several plant communities, but always on sandy substrate. The habitat within the Study Area is largely or entirely marginal for this species. The US Fish and Wildlife Service will be consulted regarding whether a focused survey for this species will be necessary. Such a survey could not have been conducted for this report because a federal permit necessary for live-trapping this species had not been issued.

California Gnatcatcher and Coastal Cactus Wren-- The distribution and abundance of California gnatcatchers and coastal cactus wrens in the vicinity of the Study Area were studied by Jon Atwood of the Manomet Observatory for Conservation Science. The entire Study Area was surveyed for breeding gnatcatchers and cactus wrens, in conjunction with surveys of the surrounding natural habitats on the Palos Verdes Peninsula. Surveys were conducted before 11:00 am and after 6 pm under weather conditions consistent with the activity and observation of these species. Tape recordings of the California gnatcatcher and cactus wren vocalizations were used to elicit responses by breeding birds. In addition to the surveys for breeding birds, dispersal patterns of these species were studied based on observations of color-banded individuals.

VEGETATION

The dominant plant communities in the Study Area are annual grassland, coastal sage scrub/grassland ecotone and coastal sage scrub along the canyons and steeper slopes of the area. The area formerly already graded in connection with landslide measures is mostly covered with a ruderal, disturbed vegetation. Figure 4 shows the distribution of the plant communities in the Study Area. The list of plants (the flora) observed in the area and/or the species which can be expected there is found in Appendix A. The plant communities map is broadly consistent with the CSS polygon map prepared by Atwood (1994).

Coastal Sage Scrub (CSS)

The plant assemblage of the CSS on the Palos Verdes Peninsula varies greatly, depending on soil conditions, slope exposition and disturbances. The species that are characteristic of this community are drought decidous, soft-leaved, aromatic shrubs such as sagebrush (*Artemisia californica*), bush sunflower (*Encelia californica*), buckwheats (*Eriogonum cinereum* and *E. fasciculatum*), sages (*Salvia leucophylla* and *S. mellifera*), bladderpod (*Isomeris arborea*), and golden bush (*Isocoma menziesii, Hazardia squarrosa*). Lemonadeberry (*Rhus integrifolia*), cactus (*O. oricola, O. littoralis*, and *O. prolifera*) also occur in CSS, as well as four o'clock bush (*Mirabilis californica*), paintbrush (*Castilleja affinis*), bedstraw (*Galium angustifolium*), needlegrass (*Nassella =Stipa lepida*), California melic grass (*Melica imperfecta*), Catalina mariposa lily (*Calochortus catalinae*), blue dicks (*Dichelostemma capitatum*), golden yarrow (*Eriophyllum confertiflorum*) and lance-leaved live-forever (*Dudleya lanceolata*).

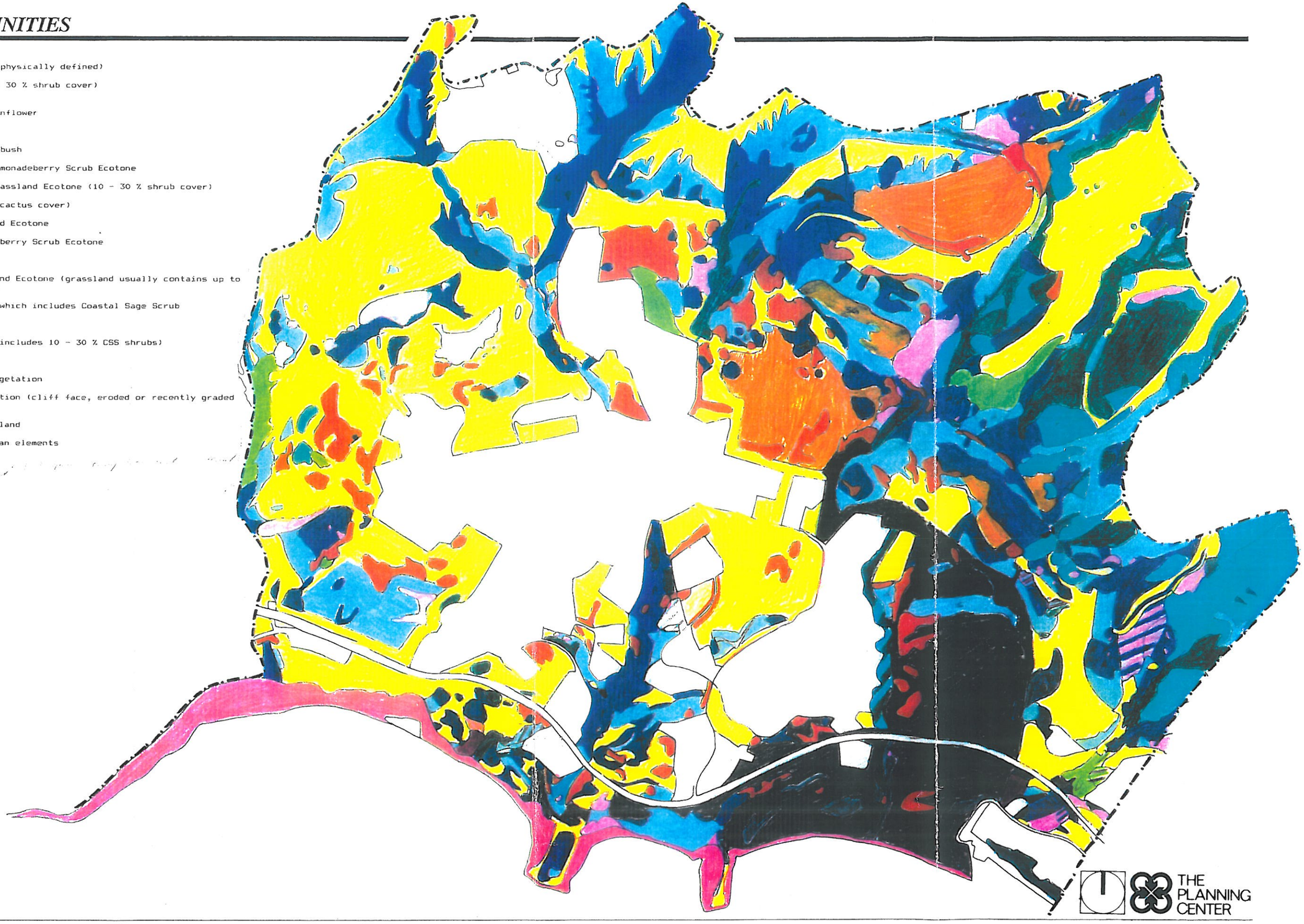
Purple sage (*Salvia leucophylla*) is one of the dominant species close to the canyon bottoms and west facing slopes of the Study Area. *Artemisia*-dominated subunits occur on south east facing slopes and there is also an association with *Artemisia* and buckwheats as codominant species. Small patches of CSS on the upper, south east facing parts of Portuguese, Ishibashi and Klondike canyons are dominated by black sage (*Salvia mellifera*). In some areas, the CSS is dominated by bush sunflower.

The level or gently sloping terrain of the Study Area contains annual grassland and/or a coastal sage scrub/grassland ecotone, probably apparently as a result of grazing until the 1940s and dry farming of these areas until the 1970s. Various weedy species and annual grasses are also found within the understory of the existing coastal sage scrub.

The CSS on the Palos Verdes Peninsula is considered to be Venturan by some biologists and Diegan by others. Westman (1983) considered the Palos Verdes Peninsula to be southern-most distribution of Venturan sage scrub and in a transition zone to Diegan Sage scrub. According to Bramlet (*in* Keith Companies, 1991), certain CSS areas show a close relationship to maritime scrub due to the abundance of succulent species.

PLANT COMMUNITIES

- Coastal Bluff Scrub (physically defined)
- Coastal Sage Scrub (> 30 % shrub cover) dominated by:
  - A - Sage Brush
  - C - Cal. Bush Sunflower
  - E - Buckwheats
  - P - Purple Sage
  - B - Black Sage
  - H - Coast Goldenbush
- Coastal Sage Scrub/Lemonadeberry Scrub Ecotone
- Coastal Sage Scrub/Grassland Ecotone (10 - 30 % shrub cover)
- Cactus Scrub (> 20 % cactus cover)
- Cactus Scrub/Grassland Ecotone
- Cactus Scrub/Lemonadeberry Scrub Ecotone
- Lemonadeberry Scrub
- Lemonadeberry/Grassland Ecotone (grassland usually contains up to 20 % CSS shrub cover)
- Recently burned area which includes Coastal Sage Scrub
- Quail Brush Scrub
- Baccharis Grassland (includes 10 - 30 % CSS shrubs)
- Grassland
- Disturbed, ruderal vegetation
- Nearly free of vegetation (cliff face, eroded or recently graded areas)
- Ornamental Trees/Woodland
- Streambed with riparian elements



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Cactus Scrub

Southern Cactus Scrub occurs mostly on south to southeast facing slopes on rocky soils and integrates with coastal sage scrub on slightly moister sites. Based on Magney's (1992) classification of Southern Cactus Scrub, areas with a coverage of at least 20 percent cactus are separated as cactus scrub. In the Study Area, the cactus coverage was often considerably greater than 20 percent. The succulent shrubs consist primarily of prickly pear cactus (*Opuntia oricola* and *Opuntia littoralis*) and coastal cholla (*Opuntia prolifera*).

In addition to cactus species, the following plants are associated with the cactus scrub community on the Palos Verdes Peninsula: *Artemisia californica, Eriogonum fasciculatum, Encelia californica, Eriogonum cinereum, Mirabilis californica, Dudleya lanceolata, Nassella lepida,* and *Isomeris arborea.* In some areas, there are many non-native annual species included like *Brassica nigra, Avena fatua, Bromus diandrus, Bromus rubens* and *Centaurea melitensis.*

Lemonadeberry Scrub

Northwest facing slopes and canyon bottoms often show dense thickets of lemonadeberry (*Rhus integrifolia*). Some authors refer to areas with an amount of more than 50 percent lemonadeberry as chaparral because it is an evergreen and thick-leaved plant. The classification of lemonadeberry as chaparral is not followed here because of all the plants found in this association, only lemonadeberry and the rarely occurring Toyon (*Heteromeles arbutifolia*) are the only two species showing these characteristics, while the accompanying species are still the soft leaved coastal sage scrub ones. Therefore occurrences with a clear dominance of Rhus integrifolia are defined as Lemonadeberry scrub. Other species common to this community are *Salvia leucophylla*, giant wild rye (*Leymus condensatus*), *Eriogonum* ssp. and *Artemisia californica.*

Coastal Sage Scrub, Cactus Scrub and Grassland Ecotones

In addition to the plant communities delineated for the Study Area, there are ecotonal areas between some of these plant communities - where the plant communities overlap and intermingle. The following ecotones were differentiated:

Coastal sage scrub/grassland ecotone: This ecotonal community is defined as grassland dominated areas with an amount of 10 - 30 percent CSS shrubs. In ecotonal areas with less than 15 percent CSS cover, the dominant species is often buckwheat (*Eriogonum cinereum* and/or *Eriogonum fasciculatum*).

Lemonadeberry/grassland ecotone: In the Study Area, consists of a grassland with up to 20 percent CSS shrubs, mostly buckwheats and sparse but evenly distributed lemonadeberry shrubs.

Coastal sage scrub/lemonadeberry scrub ecotone: Consists of coastal sage scrub with from 25 - 50 percent lemonadeberry.

Cactus Scrub/Grassland ecotone: Grassland with at least 30 percent cactus scrub.

Cactus scrub/lemonadeberry scrub: Consists of areas where these two communities intermingle, although percentage contributions were not estimated.

Baccharis/grassland ecotone: Consists of an open cover of coyote bush shrubs and usually also from 10 - 30 percent of other sage scrub shrubs, while the grassland components are the same as described in the annual grassland section.

Coastal Bluff Scrub (CBS)

The Southern Coastal Bluff scrub community occurs along the ocean cliffs on the Palos Verdes Peninsula from Pt. Fermin to Redondo Beach. Coastal bluff scrub occupies steep, wind and salt spray exposed coastal bluffs, with nearly no or extremely shallow soil. A well-developed CBS occurs along the bluff faces of Portuguese and Inspiration Point as well as parts of Abalone Cove. In gently sloping areas with deeper soil, the CBS community can integrate with Venturan sage scrub and/or grassland.

The composition of CBS in the Study Area, shown in Figure 4, was difficult to study in the field due to its occurrence in steep terrain. Coastal bluff scrub is mostly composed of shrubs and succulents and shares some of the dominant plant species with coastal sage scrub, namely *Artemisia californica*, *Rhus integrifolia*, *Encelia californica*, *Isocoma menzesii*, *Opuntia prolifera*, *Opuntia oricola* and *Isomeris arborea*. It also includes species largely restricted to it, at least on the Palos Verdes peninsula, such as box thorn (*Lycium californicum*), seacliff buckwheat (*Eriogonum parvifolium*) and bright green dudleya (*Dudleya virens*), California plantain (*Plantago insularis*), California saltbush (*Atriplex californica*), snake's head (*Malacothrix coulteri*), aphanisma (*Aphanisma blitoides*), and seaside calandrinia (*Calandrinia maritima*). Often on the base on the bluffs, but occasionally also within the lower parts of the bluff scrub grows sea blite (*Suaeda taxifolia*), a plant that generally is associated with salt marshes.

Annual grasses and introduced weeds are also established on the bluffs as a result of disturbances due to development on the bluff top and recreational trails.

In some areas, disturbance has resulted in the replacement of CBS vegetation by weedy non-native plant species and ornamental trees, and erosion and earth movement resulted in nearly vegetation free bluff faces especially between Portuguese Point and Portuguese Bend Club.

Annual grassland

The annual grassland community generally occurs on relatively deep, heavy soils, in contrast to the thin, rocky soils supporting scrub vegetation. Nevertheless this plant community inhabits some of the hottest and driest habitats since clay soils have a colloidal reaction which prevent precipitation from filtering into the ground.

In the Study Area annual grassland is dominated by barley (*Hordeum leporinum*), brome grasses (*Bromus diandrus*, *Bromus rubens*), oats (*Avena barbata*, *Avena fatua*), mustards (*Brassica nigra* and *Hirschfeldia incana*) and in some areas yellow starthistle (*Centaurea melitensis*), all of which are non-native.

In some areas, e.g. around the upper area of Portuguese Canyon, the annual grassland supports native bulbous species such as Catalina mariposa lily (*Calochortus catalinae*), blue dicks (*Dichelostemma capitatum*) and golden stars (*Bloomeria crocea*), and native annuals such as the smallflowered morning glory (*Convolvulus simulans*), a clay endemic, which is on the recent DFG's list of species of special concern.

Some areas with annual grassland include occasional coastal sage scrub shrubs, and other locally important species. The grasslands east of Berkentine Canyon off the Pony Club contain matchweed (*Gutierrezia californica*). This small shrub can be found only in two places on the Palos Verdes Peninsula here, and in a small spot further west, along the trail on the east side of McCarrell Canyon. Some grassland areas show an unusual high amount of cliffaster (*Malacothrix saxatile*), such as on the slopes south of the area that burned last July (see Figure 4) and/or of manroot (*Marah macrocarpus*), such as on the grassy slopes southeast of Paintbrush Canyon.

Open Channel Habitat/Stream Bed With Riparian Elements

All of the major canyons in the Redevelopment area contain a blue line stream. Among these, areas within Klondike and Kelvin Canyons have springs and perennial water which support riparian elements. These two are the only canyons with perennial water on the west side of the hill from San Pedro to Malaga Creek in Palos Verdes Estates and therefore are unique for wildlife and local habitat diversity.

In Klondike Canyon, where the water is mostly collected in plastic pipes, a small area with herbaceous riparian vegetation has developed north of the trail connecting the Portuguese Bend area to Forrestal to the east. This area supports several arroyo willows (*Salix lasiolepis*). Some additional species found in this riparian community are annual beard grass (*Polypogon monspeliensis*), nutsedge (*Cyperus species*), and eupatory (*Ageratina adenophora*), pampas grass (*Cortaderia selloana*), giant wild rye (*Leymus condensatus*), sweet clover (*Melilotus indicus*), quail brush (*Atriplex lentiformis*), *Myoporum laetum* and *Acacia* ssp..

In Kelvin Canyon, a perennial spring in the mid-section of the canyon provides a year-round flow of water flow. This section part of the Kelvin canyon is dominated by dense *Acacia* stands with CSS remnants in the understory, and also includes willows (*Salix lasiolepis*), Mexican elderberry (*Sambucus mexicana*) and toyon. However, the crown coverage is so dense, no herbaceous understory has developed. Mosses can be found growing around the spring.

Disturbed, Ruderal

Among the areas with disturbed vegetation are those dominated mostly by the non-native, low-growing saltbush species and occasionally also the shrubby and native quail brush (Atriplex lentiformis). This vegetation type mostly occurs within the area graded a few years ago as part of a measure to stop the landslide. This community also includes weedy non-native vegetation, with the following species: clover (*Trifolium hirtum*), oxtongue (*Picris echioides*), sow thistle (*Sonchus* ssp.), horseweed (*Conyza canadensis*), tumbleweed (*Salsola tragus*), sweet clover (*Melilotus* ssp.), Australian saltbush (*Atriplex semibaccata*), sea lavender (*Limonium perezii*), fennel (*Foeniculum vulgare*) and castor bean (*Ricinus communis*), tree tobacco (*Nicotiana glauca*), and acacia.

The disturbed areas south of Palos Verdes Drive South also contain occasional coyote bush (*Baccharis pilularis*) and sage scrub shrubs plants intermingled with the weedy species. The disturbed plant community contains areas dominated by iceplant species and other ornamental perennials. Ornamental perennials and iceplants specially grow around Abalone Cove and Portuguese Point and below the houses on the northwest facing slope of Klondike Canyon, close to Palos Verdes Drive South.

Ornamental Woodland

Ornamental, exotic shrub and tree species were planted in the past around the Portuguese Bend development and Peacock Flat. The species included in the ornamental woodland community are peppertree (*Schinus molle* and *Schinus terebinthifolia*), gum trees (*Eucalyptus* sp.), pines (*Pinus* sp.), and acacia species, *Myoporum laetum* and *Robinia pseudoacacia.* Some of these species, especially acacias and *Schinus molle*, are naturalized and can now also be found in grassland and CSS areas. Laurel sumach (*Malosma laurina*), which occasionally occurs on the Palos Verdes Peninsula seems together with *Rhus integrifolia* to be more intermixed in ornamental stands around the perimeters of the Portuguese Bend development. Occasionally sage scrub shrubs can be found underneath clumps of ornamental trees.

Quail Bush Scrub

Quail bush scrub is dominated by the tall *Atriplex lentiformis*. Underneath and around the shrubs occur the low-growing non-native saltbush species, as well as sweet clover (*Melilotus indicus* and *M. albus*), oxtongue (*Picris echioides*), garden beet (*Beta vulgaris*), *Chenopodium* species and annual grasses. This community is limited to disturbed areas within the Study Area, but was seperately designated because of its different appearance.

Burned Areas

Fire usually plays a natural part in the coastal sage scrub growth cycle, allowing the rejuvenation of this plant community. Since in this climate decomposing of organic material is very slow, fire burns accumulated dead and old wood and sets free minerals and chemicals which can become recycled in the ground. In mature sage scrub stands, the scrub is dominated by tall, dense, woody species, with few or no herbaceous species in the understory. Herbaceous species comprised mainly of annuals are common in sage scrub communities in the first few years following a fire.
Last year, two areas burned within the redevelopment area. The burned spot at Abalone Cove was obviously previously covered by coastal sage scrub. The larger, burned slope below Crestroad had clearly coastal sage scrub on both sides of the existing drains and partly on the ridges between. The other parts were probably covered by coastal sage scrub/grassland ecotone and/or grassland.

Fire may be damaging to heavily fragmented sage scrub areas (Alberts et al, 1993). Observations within the Study Area support this hypothesis. One of the areas burned in the fire of June 1992 was the cactus scrub and sage scrub patches above Narcissa, west of Altamira Canyon. Most of the cactus patches did not appear to be directly damaged by the fire. Later, native herbaceous plants (e.g., narrow-leaved milkweed, *Asclepias fascicularis*), and cliffaster, *Malacothrix saxatile*) were observed germinating and sprouting within the cactus scrub patches. However, these patches were also invaded by nonnative annual grasses, mustard and yellow star thistle, which has been observed elsewhere to result in adverse long-term

changes to the sage scrub community. The structure of these burned communities can also be changed when tall (up to 6 feet tall), dense mustard come to dominate the sage scrub community.

WILDLIFE

The vertebrates observed in the Study Area are listed in Appendix B.

Amphibians

The majority of the Study Area is covered with semi-arid communities that provide little or no habitat for amphibians there. The intermittent streams in the Study Area, particularly that found in Kelvin Canyon, may be considered potential habitat for amphibians such as the ubiquitous western toad (*Bufo boreas*) and tree frog (*Hyla regilla*). A focused survey of Altamira, Portuguese, and Kelvin Canyons for amphibians revealed none. It is not known why amphibians do not occur in Kelvin Canyon, or if amphibians have ever been recorded from this area.

Reptiles

The focused survey for reptiles revealed four species in the Study Area: the side-blotched lizard (*Uta stansburiana*) and western fence lizard (*Sceloporus occidentalis*) are abundant; the alligator lizard (*Gerrhonotus multicarinatus*) and western rattlesnake (*Crotalus viridis*) are common residents of the Study Area. Based on the focused survey and habitat evaluation for the San Diego horned lizard (*Phrynosoma coronatum blainvillei*) and its sign (scats), this species does not occur in the Study Area, and the habitat in the Study Area is not suitable.

Birds

32 bird species were observed in the Study Area in the course of the general site survey. This contrasts with the substantially larger number of species known to occur on the Palos Verdes Peninsula, where the diversity of resident and migrant birds is unusually high. This high diversity is attributable in part to full complements of both terrestrial and marine birds there. Some common species typically found in the grassland and coastal sage scrub communities that dominate the in the Study Area are the California quail, Allens hummingbird, mourning dove, ash-throated flycatcher, scrub jay, bushtit, Bewick wren, phainopepla, loggerhead shrike, and rufous-sided towhee. The species typical of the developed residential areas within the Study Area are the native black phoebe, northern mockingbird, and nonnative peacock, starling, and house sparrow. Only two raptoral birds were observed in the Study Area during the general zoological survey, the red-tailed hawk and American kestrel, although a number of other species such as the Peregrine falcon and merlin forage there more or less regularly. Appendix B lists the birds observed in the Study Area.

Mammals

Appendix B lists the terrestrial mammals expected to occur on the peninsula, and potentially in the Study Area, based on a review of the distributions of mammals (Hall, 1981) and museum records from the

Museum of Vertebrate Zoology, University of California, Berkeley, and the Los Angeles County Museum of Natural History. 32 terrestrial species potentially occur there, including marsupials, shrews, rabbits, rodents, and carnivores. However, there are reliable records for only about half of these species on the peninsula. The results of a preliminary live-trapping field survey for rodents in the Study Area and its vicinity is summarized in Table 1.

The Virginia oppossum (*Didelphis virginiana*), red fox (*Vulpes vulpes*), gray fox (*Urocyon cinereoargenteus*) and the spotted skunk (*Spilogale putorius phenax*) have been observed in the Study Area.

Table 1. Small Mammal Trapping Results, Rancho Palos Verdes Peninsula

Date	Locality	Habitat	Method	Results	
Live-trapping Results from the Study Area					
18 April 1994	Klondike Canyon	Grassland	40 live-traps	1	*Neotoma lepida intermedia*
				2	*Reithrodontomys megalotis*
"	", north-facing slope	Sage scrub/ lemonadeberry		1	*Chaetodipus californicus*
				2	*Reithrodontomys megalotis*
"	", south-facing slope	Open cactus scrub, sage scrub	40	1	*Neotoma lepida intermedia*
				4	*Reithrodontomys megalotis*
22 April 1994	Kelvin Canyon	Riparian: willows, lemonadeberry	40	4	*Neotoma lepida intermedia*
4 September 1993	Along Palos Verdes Drive, near Portuguese Bend	Cactus scrub	20	10	*Neotoma lepida intermedia*
				2	*Reithrodontomys megalotis*
5 November 1989	Altamira Canyon	Nonnative grassland, cactus scrub, streambed wash	30	1	*Chaetodipus californicus*
				10	*Neotoma lepida intermedia*
Live-trapping Results from Palos Verdes Peninsula, Outside the Study Area					
9 May 1989	1/8 mi. E Marineland entrance, Rancho Palos Verdes	Coastal sage scrub	20	1	*Peromyscus maniculatus*
				7	*Neotoma lepida*
7 August 1989	Rocky Point Road, Palos Verdes Estates	Nonnative grassland, iceplant	30	2	*Mus musculus*

Table 1. Small Mammal Trapping Results, Rancho Palos Verdes Peninsula

Date	Locality	Habitat	Method	Results
18 April 1994	1 mi. N Coast Guard Station, Pt. Vicente	-	Analysis of 7 owl pellets	*Sorex ornatus* *Thomomys bottae* *Reithrodontomys megalotis* *Mus musculus* *Rattus rattus*
		Totals	240	*Sorex ornatus* *Thomomys bottae* *Chaetodipus californicus* *Neotoma lepida intermedia* *Reithrodontomys megalotis* *Peromyscus maniculatus* *Rattus rattus* *Mus musculus*

INVERTEBRATES

Butterflies

Table 2 lists the butterflies that potentially occur or are known to occur in the Study Area. This list is based on the field surveys of the Study Area and surrounding areas conducted for this report and during numerous previous studies. Knowledge of butterflies, their life histories, phenology, distribution, etc. is more comprehensive than for any group of animals excepting birds. Because of this robust database, conclusions regarding parameters of concern to conservation biology can be made with relative certainty. Table 2 lists the breeding resident butterflies of the Palos Verdes Peninsula, dividing them according to whether their larvae feed on native foodplants (24 species) or introduced species. Appendix C considers an additional 5 species that are rare, sporadic migrant species that do not breed in the Los Angeles basin, and for which their preferred foodplant may or may not be present.

Table 2.
Butterflies in the Project Region

Species	Common Name	Food Plant and Comments
	Breeding Resident Species	
PAPILIONIDAE		
Papilio rutulus	Western tiger swallowtail	*Platanus racemosa* Various willows
PIERIDAE		

Species	Common Name	Food Plant and Comments
	Breeding Resident Species	
Anthocharis sara sara	Sara orange-tip	Native mustards, but commonly on several species of introduced mustards
Colias eurtheme	Alfafa sulphur	Deerweed, wild peas, rattlepod, alfalfa. Found year-round
NYMPHALIDAE		
Danaus plexippus	Monarch	Milkweeds of the genus *Asclepias*. Should be on watch list as populations are severely declining.
Vanessa virginiensis	American lady	All *Gnaphalium* species
Nymphalis antiopa	Mourning cloak	Willows
Vanessa cardui	Painted lady	Pigweed, tobacco, many plants
Vanessa atalanta rubria	Red admiral	Stinging nettle, baby tears
Limenitis lorquini	Lorquins admiral	Willows
LYCAENDAE		
Calephelis nemesis	Dusky metalmark	California bush sunflower (*Encelia californica*). First observed in region by Rick Rogers, 15 March 1994.
Strymon melinus	Common hairstreak	Buckwheats, deerweed, many plants
Brephidium exilis	Pygmy blue	*Atriplex*, *Salsola*, *Chenopodium*. Common, flies throughout year
Leptotes marina	Marina blue	Deerweed, Plumbago, many ornamental legumes; Common, flies throughout year if not too cold
Plebejus acmon	acmon blue	Buckwheats, deerweed. June-Sept.
Everes amyntula	Western tailed blue	Rattleweed. The species was last seen in 1985, two years after the south slope Palos Verdes blue populations were extirpated. Its foodplant populations were substantially reduced by drought and weed control, and habitat loss during the early 1980's. Land conversion also fragmented populations. The species has been declining throughout the Los Angeles basin. This species should be reintroduced.
Euphilotes bernardino allyni	El Segundo blue	*Eriogonum parvifolium* is the only foodplant.
Euphilotes bernardino bernardino - Euphilotes bernardino allyni	Square-spotted blue	*Eriogonum parvifolium* and *E. cinerium* are used as foodplants.
Glaucopsyche lygdamus palosverdesensis	Palos Verdes blue	This species is discussed in section 4 of this report.
HESPERIDAE		
Hylephila phyleus	Fiery skipper	Grasses. Common, flies throughout year
Atalopetes campestris	Field skipper	Grasses. Summer
Polites sabuleti	Sandhill skipper	Grasses, but prefers *Distichlis spicata*, flies in summer
Lerodea eufala	Eufala skipper	Grasses; rare, flies in summer.
Erynnis zarucco funeralis	Funereal skipper	Deerweed. Restricted to deerweed patches on east and southeast parts of Palos Verdes. Flies from Feb.-Sept.

Species	Common Name	Food Plant and Comments
	Breeding Resident Species	
	Breeding Resident Species, Larvae Feed on Introduced Species (10 species)	
PAPILIONIDAE		
Papilio zelicaon	Anise swallowtail	Fennel, found all year
PIERIDAE		
Pieris rapae	Cabbage butterfly	Mustards, nasturtium. This species was introduced into the United States in about 1870. Flies all year.
Pieris protodice	Common white	Mustards
Phoebis sennae marcellina	Cloudless sulfur	Cassia. Flies all year
Eurema nicippe	Nicippe sulfur	Cassia. Flies all year
NYMPHALIDAE		
Vanessa carye anabella	West Coast lady	Pigweed
Precis coenia	Buckeye	Plantains. Flies all year
Agraulis vanillae	Gulf fritillary	Passionvine. Common, all year
HESPERIDAE		
Pyrgus communis albescens	Western checkered skipper	Cheeseweed
Paratrytone melane	Umber skipper	Grasses. Found in damp and irrigated areas. Dispersed from the tropics. Usually found in summer.

Sensitive Plants Species and Communities

The plant species of concern and communities that either potentially occur or are known to occur in the Study Area are shown in Table 3. The Natural Diversity Database (DFG, 1994) list of special plants (February 1994), and the revised CNPS Inventory of rare and endangered vascular plants of California were used to determine the plant species of concern. Additionally, plants were considered which should be on a watch list for Los Angeles County and a list of rare and unusual plants of the peninsula is included.

Currently, no federally listed plant species are known to occur within the Study Area. One state-listed plant species and four candidate species for federal listing can be found within the project region.

Table 3.
Sensitive Plant Species in the Project Region

Species	Federal Status	State/CNPS Status	Comments
Lyon's Pentachaete *Pentachaeta lyonii*	FC1	SE	This species was reported to occur on the Palos Verdes Peninsula in 1910 (at San Pedro Hill), but has not been found there recently. The potential for this species in the Study Area is low.
Catalina calochortus *Calochortus catalinae*	-	CNPS 4 SP	Occurs within the Study Area.
Western dichondra *Dichondra occidentalis*	-	CNPS 4, SP	Expected to occur in the Study Area. This species was observed in the Forrestal area, east of the Study Area, in spring of 1993, which is adjacent to the Study Area.
Smallflowered Morning Glory *Convolvulus simulans*	-	CNPS 4, SP	Occurs in the upper part of Portuguese Canyon in the Study Area.
Aphanisma *Aphanisma blitoides*	-	FC2, CNPS 1B, SP	Occurs in coastal bluff scrub in Abalone Cove (Figure 5) and also in the vicinity of the southeastern corner of the Study Area (from Portuguese Bend Club eastwards to Royal Palm Beach).
Seaside Calandrinia *Calandrinia maritima*	-	SP, CNPS 4	Occurs in CBS between Halfway Pt. and Shoreline Park.
South Coast Saltbush *Atriplex pacifica*	-	FC2, CNPS 1B, SP	Occurs within Study Area, on Inspiration Point and also along the trail on the west side of Shoreline Park.
Sea blite *Suaeda taxifolia*	-	CNPS 4, SP	Occurs along the base of coastal bluffs, within Study Area.

Species	Federal Status	State/CNPS Status	Comments
Catalina crabapple bush *Crossosoma californicum*	-	SP, CNPS 4	Occurs in Forrestal quarry bowl.
Bright green dudleya *Dudleya virens*	-	FC2, CNPS 1B, SP	Grows along coastal bluffs in the vicinity of the Study Area from Pt. Vicente to Royal Palms Beach (previously known to Pt. Fermin).
Catalina Island desert thorn *Lycium brevipes hassei*	-	F3A, CNPS 1B, SP	Occurs within Study Area at Portuguese Pt and in Bluff Cove area (Palos Verdes Estates).
Southern tarplant *Hemizonia parryi australis*	-	CNPS 1B, FC2	Closest known locations are Harbor Park and Madrona Marsh.
Mexican flannelbush *Fremontodendron mexicanum*	-	SR, FC2, CNPS 1B	According to the NDDB a single individual was reported from the Palos Verdes Peninsula in 1963. No habitat for this plant occurs within the Study Area.

Legend

SE	State listed as an endangered plant species
SR	State listed as a rare plant species
F3A	Enough data are on file to support federal listing, but the plant is presumed to be extinct
FC2	Threat and/or distribution data are insufficient to support federal listing
SP	Special Plants according to the Department of Fish and Game list, August 1993

CNPS

1B	Plants that are rare, threatened or endangered in California and elsewhere
2	Plants rare, threatened, or endangered in California, but more common elsewhere
3	Plants about which we need more information - review list
4	Plants of limited distribution

Source: Angelika Brinkmann-Busi, 1994

Plants Designated as Rare or Listed as Endangered by the State of California

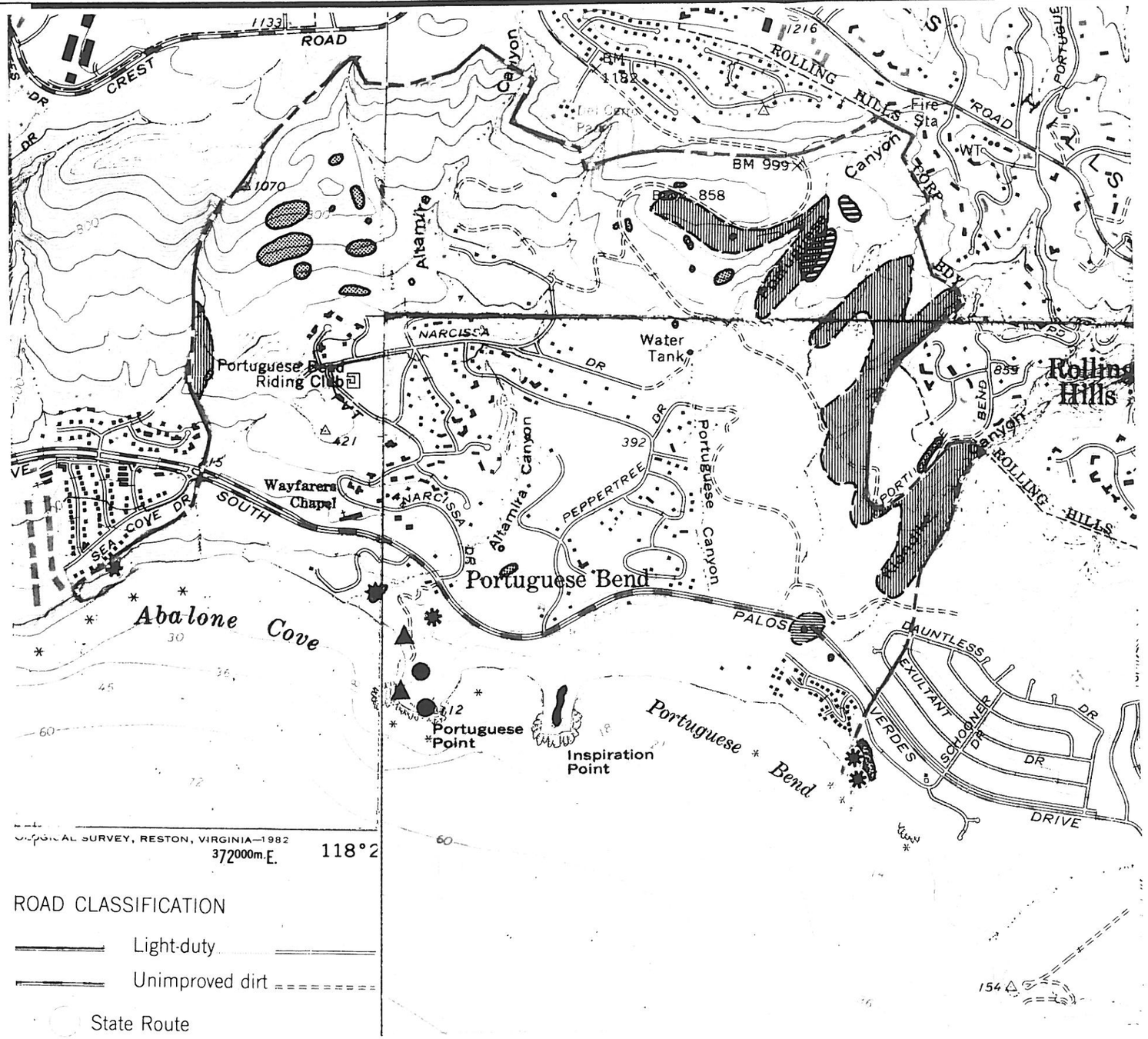
Lyon's Pentachaeta (*Pentachaeta lyonii*)

Lyon's pentachaeta is listed by the state of California as an endangered species was first discovered and described from the San Pedro area. It is a small, slender annual plant of the sunflower family with small yellow flowers that bloom from March to April, growing in grassland coastal sage scrub ecotonal areas. It was formerly known to occur on the Palos Verdes Peninsula and on Santa Catalina Island, but has not recently been seen in either area. Urbanization may have eliminated most of the habitat on the Palos Verdes Peninsula. Suitable habitat may still exist on Santa Catalina Island. Currently, this species is known only from the Santa Monica Mountains.

Mexican flannelbush (*Fremontodendron californicum*)

Mexican flannelbush is listed by the State of California as a rare plant species. The Mexican flannel bush is a stiff shrub or small tree with showy orange flowers which appear from March to June. It

REGIONALLY SENSITIVE PLANT SPECIES LOCATIONS



ROAD CLASSIFICATION

- Light-duty
- Unimproved dirt
- State Route

Candidate species for federal listing:

- Catalina Island Desert Thorn (Lycium brevipes ssp. hassei)
- Aphanisma (Aphanisma blitoides)
- South Coast Saltbush (Atriplex pacifica)
- Bright Green Dudleya (Dudleya vireus)

Special plant species according to CDFG:

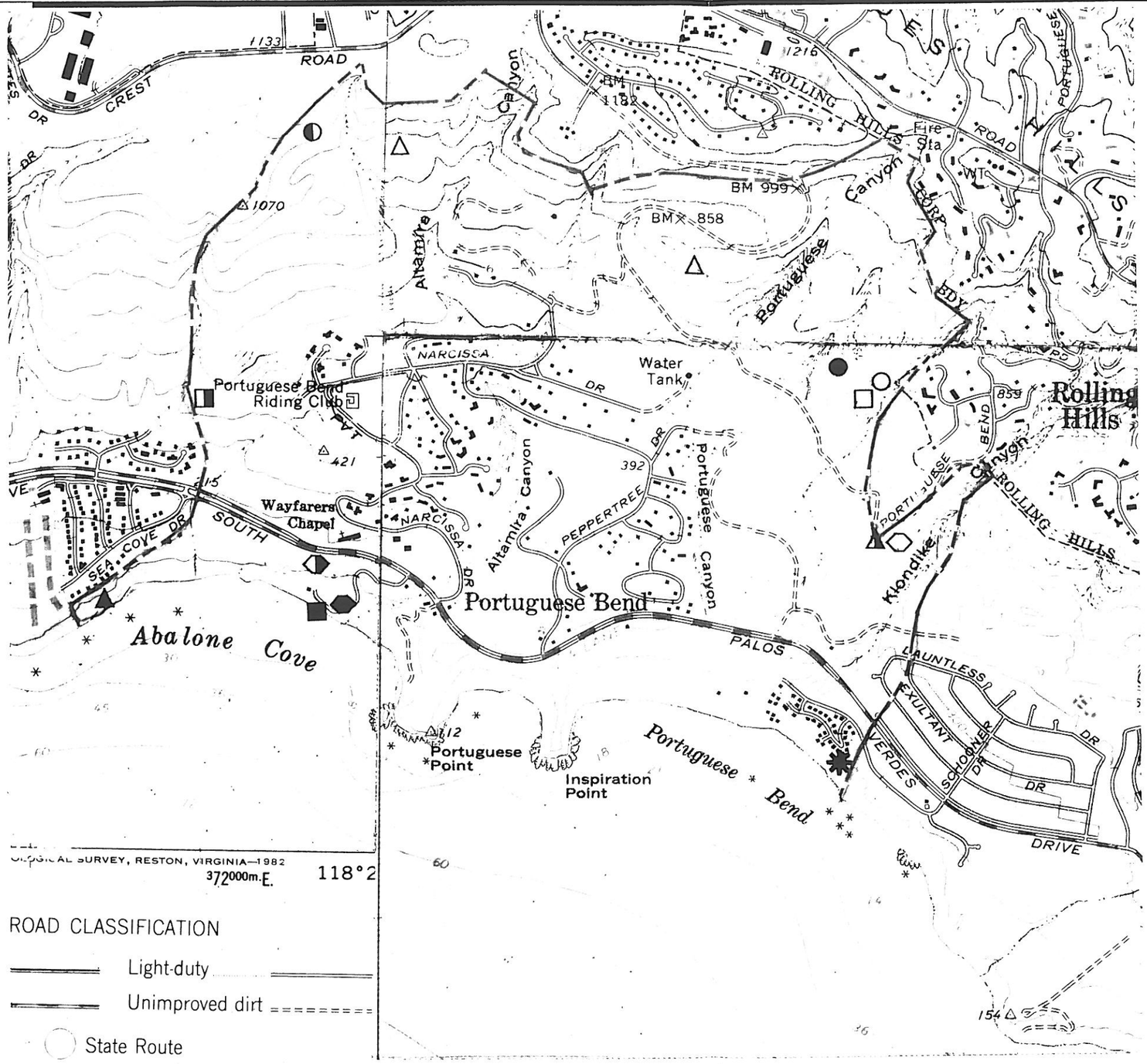
- Catalina Mariposa Lily (Calochortus catalinae)
- Smallflowered Morning Glory (Convolvulus simulans)
- Sea Blite (Suaeda taxifolia)

Los Angeles County plant species of concern:

- Seacliff Buckwheat (Eriogonum parvifolium)
- White Fiesta Flower (Pholistoma racemosa)

Food plants of endangered butterflies:

- Ocean Locoweed (Astragalus trichopodus ssp. lonchus)
- Seacliff Buckwheat (Eriogonum parvifolium)



- California Saltbush (Atriplex californica) [1990; not found during the field-work in February]
- Owl's Clover (Castilleja exserta); [1992]
- Whispering Bells (Emenanthe penduliflora); [1992]
- Fleabane (Erigeron foliosus)
- Wand Buckwheat (Eriogonum elongatum)
- Globe Gilia (Gilia capitata); [1991]
- Matchweed (Gutierrezia californica)
- Shiny Peppergrass (Lepidium nitidum); [1991]
- Sticky Leaf (Mentzelia micrantha); [1992]
- Annual Muhly (Muhlenbergia microsperma); [1991]
- Chia (Salvia columbaria)
- Deerweed (Lotus scoparius); [1991]
- Purple Snapdragon (Antirrhinum nuttallianum); [1992]

NOTE: The species shown were not regularly checked. Where no follow up check was done, the year the plant was last found is noted.

grows in dry canyons in chaparral and Southern Oak woodland of Orange, San Diego and southwest Imperial counties and Baja California. According to the NDDB a single plant was reported in 1963 from the Palos Verdes Estates area, but this plant is thought to have been extirpated. No habitat for this plant species was found within the Study Area.

Plants that are Candidates For Federal Listing as Threatened or Endangered or are on the State List of Special Plants

Catalina Island desert thorn (*Lycium brevipes hassei*)

The Catalina Island Dessert Thorn is a Category 3A species which means that the plant is presumed to be extinct. However, if the plant is re-discovered, it could have a high priority for listing. The species is a much branched, thorny shrub, growing up to 12 feet in height. It was known to be endemic to Santa Catalina and San Clemente Island, growing on coastal bluffs and slopes below 900 feet.

Two populations of the plant occur on the Palos Verdes Peninsula, one at Portuguese Point, within the Study Area, and one in Palos Verdes Estates. It is not known whether the Catalina Island Desert Thorn on the Palos Verdes Peninsula was planted or occurs there naturally. According to Hickman (1993), southern California mainland occurrences are derived from cultivated plants.

Aphanisma (*Aphanisma blitoides*)

Aphanisma is another federal candidate list 2 species. It is a rare plant of coastal sage scrub and bluffs below 300 feet and occurs from coastal Los Angeles County and the southern Channel Islands southwards to Baja California. Aphanisma is a low growing annual of the goosefoot family with inconspicuous flowers and fleshy leaves. Its leaves can turn bright orange to red before the plant dies. Aphanisma was found in the past 3 years on the bluffs south east of the Study Area and a patch was found on the northwest side of Portuguese Point.

South Coast Saltbush (*Atriplex pacifica*)

The South Coast Saltbush is a federal candidate 2 plant of the goosefoot family. It is a prostrate, mat-like annual that occurs on bluffs and in shrubland below 300 feet on the Channel Islands and from Los Angeles County southwards to Baja California. This species grows on the west side of Shoreline Park and on the top of Inspiration Point within the Study Area.

Southern tarplant (*Hemizonia parryi australis*)

The Southern Tarplant was recently added to the federal candidate 2 list. This erect annual of the sunflower family has spine tipped linear leaves and small yellow flowers. It grows in seasonally moist, saline grassland and on the edges of brackish marshes, below 600 feet from Santa Barbara County south to northern Baja California. The known occurrences closest to the Study Area are at Harbor Park, Madrona Marsh and Ballona Creek. No habitat for this plant exists in the Study Area.

Bright green dudleya (*Dudleya virens*)

Dudleya virens is a candidate 2 species for federal listing. The bright green live-forever is a succulent plant which grows on coastal bluffs below 1200 feet on the southern Channel Islands, and on Guadalupe Island in Mexico. On the California mainland, it is known only from the Palos Verdes Peninsula in a short stretch roughly between Point Vicente and Royal Palm Beach. According to Moran (1951), the plant grew also southward to Point Fermin in San Pedro. The leave rosettes of the plant can form small clumps and the cream to yellow colored flowers appear on long stalks from April to June. Despite its common name the succulent leaves of the peninsula plants are rather grayish looking.

The revised CNPS inventory includes this species on the 1B list, comprised of plants that are rare, threatened or endangered in California and elsewhere. The Study Area lies within the distribution range on the peninsula, but no individual locations are known.

Species that are included on the California Native Plant Society's "Watch List"

Among the species known to occur within the Study Area are the following that local botanists propose to include in a watch list for Los Angeles County (Ross, personal communication, 1994). These species, listed in Table 4, include plants that were found to be rare or uncommon in the project region based on previous surveys. They include species with special habitat requirements that are found in limited areas on the peninsula, and species that are low in numbers, even though substantial habitat exists there. More information about the local distribution of these plants is needed and they should be looked for in future surveys and/or EIR's.

Catalina Mariposa Lily (*Calochortus catalinae*)

This bulbous plant has grass like leaves and erect, large white flowers with a purplish tinge and purple spots near the base. It grows in heavy soil, in open grassland and openings in shrubland below 2000 feet. It is distributed from San Louis Obispo County to San Diego County and on the Channel Islands. The plant is threatened by development. It occurs within the Study Area, as shown in Figure 5.

Western Dichondra (*Dichondra occidentalis*)

This low-growing perennial of the morning glory family can be found in chaparral, coastal sage scrub and southern oak woodland, on dry slopes, generally under shrubs or trees in elevations below 150 and 1500 feet. It occurs from the south coast and southern Channel Islands to Baja California. The plant was found last spring above Forrestal and suitable habitat also exists in the Study Area.

Sea blite (*Suaeda taxifolia*)

This up to 5 feet tall glaucous shrub grows on coastal bluffs and margins of salt marshes below 50 feet. It occurs from Santa Barbara County and the Channel Islands southwards to Baja California. This shrub can be found scattered along the whole length of the coastal bluffs of the peninsula and can also be expected to grow within the Study Area.

Smallflowered Morning Glory (*Convolvulus simulans*)

This low, diffusely branched annual is endemic to clay soils and grows in grassland and open coastal sage scrub areas between 90 and 1500 feet. The small pinkish flowers appear from March to May. It occurs from Conva Costa County to Southern California, Catalina Island and Baja California. The plant was found within the Study Area at the edges of CSS and in the grassland around the upper parts of Portuguese Canyon.

Seaside Calandrinia (*Calandrinia maritima*)

This uncommon plant is a glaucous annual with succulent obvate leaves and panicles of small magenta flowers. It grows in sandy soils along sea bluffs below 900 ft from Santa Barbara County southwards to Baja California and the Channel Islands. The plants were found in 1991 and 1992 along the bluffs of Subregion 7 and 8 west of the Study Area.

Catalina crabapple bush (*Crossosoma californica*)

Crossosoma is a shrub to small tree with pale green small leaves an white flowers which appear early from February to May. The plant occurs on dry, rocky slopes and canyons below 1500 feet elevation. It is endemic to the southern channel islands (Santa Catalina and San Clemente), and Guadalupe Island, Mexico and also occurs in the Forrestal area on the Palos Verdes Peninsula.

Table 4.
Sensitive Plant Species of Local Concern

Species With Special Habitat Requirements, that are Limited on the Palos Verdes Peninsula
Adiantum jordanii, maidenhair fern
Pellea andromedifolia, Coffee fern
Pityrogramma triangularis, goldback fern
Dryopteris arguta, wood fern
Rhus ovata, sugar bush
Ericameria ericoides, mock heather *
Erysimum suffrutescens, coast wallflower *
Croton californicus, Cal. croton
Phacelia ramosissima, beach Phacelia
Camissonia cheiranthifolia, beach primrose
Camissonia micrantha, smallflowered evening primrose
Clarkia purpurea, purple Clarkia
Rumex hymenosepalus, sand dock*

Species Known From Few or Single Locations**

Baccharis emoryi, coyote brush*
Daucus pusillus, rattlesnake plant
Eremocarpus setigerus, turkey mullein
Artemisia drancunculus, wild tarragon
Erigeron foliosus, fleabane
Filago californica, Cal. filago
Grindelia robusta gumplant*
Ericameria palmeri var. *pachylepis*, Palmer's goldenbush *
Malacothrix coulteri, snake's head *
Microseris linearifolia, white Microseris
Rafinesquia californica, California chicoree
Amsinckia intermedia, common fiddleneck
Lepidium nitidum, shiny peppergrass
Aphanisma blitoides, Aphanisma *
Atriplex californica, Cal. saltbush
Atriplex pacifica, South Coast saltbush *
Convolvulus simulans, smallflowered morning glory *
Dichondra occidentalis, western dichondra *
Lotus strigosus, strigose Lotus
Lotus purshianus, spanish clover
Lupinus bicolor, mini lupine
Lupinus truncatus, collar lupine
Emenanthe penduliflora, whispering bells
Nemophila menziesii, baby blue eyes
Pholistoma racemosum, white fiesta flower *
Salvia columbariae, chia
Mentzelia micrantha, sticky leaf
Camissonia bistorta, southern sun cup
Gilia capitata, globe Gilia
Gilia angelensis, angels Gilia
Eriogonum elongatum, wand buckwheat
Calandrinia ciliata, red maids
Calandrinia maritima, seaside Calandrinia *

Species Known From Few or Single Locations**
Antirrhinum coulterianum, white snapdragon
Antirrhinum kellogii, Kellog's snapdragon
Antirrhinum nuttallianum, purple snapdragon
Castilleja exserta, =*Orthocarpus purpurascens*, owl's clover
All native grasses, except of *Nassella lepida* and *Melica imperfecta*

* Species that should be on a Los Angeles County watch list
** The populations of these species may be small.
Source: Angelika Brinkmann-Busi 1994

Plants That Are Uncommon in Los Angeles County

Among the plant species known from the Study Area are plants that should be on a Watch List of plants for Los Angeles County (Ross, pers. comm.). These species are recognized here as Species of Local Concern.

White fiesta flower (*Pholistoma racemosum*)

This species is known from the Santa Monica Mountains and one restricted location on the Palos Verdes Peninsula. It is rare on the mainland (in Los Angeles County), but additional populations occur on Santa Catalina and San Clemente Island. A small population occurs on the bench and slope of the north-facing side of Altamira Canyon, in a very narrow stretch. The proposed widening and lining of the bottom of Altamira Canyon could eliminate the only known Palos Verdes Peninsula population.

Seacliff buckwheat (*Eriogonum parvifolium*)

The seacliff buckwheat occurs scattered along the coastal bluffs of the peninsula, including at Abalone Cove and the northwest-facing side of Altamira Canyon below Palos Verdes Drive South. It should be included in a Los Angeles County watch list because of the limited habitat available. The seacliff buckwheat is a food plant for the federally endangered El Segundo blue butterfly, which occurs on the El Segundo Dunes and in the vicinity of Rat Beach, immediately north of Malaga Cove.

Plants that are of Special Interest as Food Plants for Sensitive Butterflies

Besides the seacliff buckwheat, a food plant of the endangered El Segundo Blue Butterfly, there are two other plant species of importance for rare butterflies.

Ocean locoweed (*Astragalus trichopodus lonchus*)

The ocean locoweed is protected as the food plant of the federally endangered Palos Verdes blue butterfly. This butterfly, which had not been seen for several years, was rediscovered this March in San Pedro. This plant is found is several places within the Study Area, as shown in Figure 5.

Ashy-leaved buckwheat (*Eriogonum cinereum*)

The ashyleaved buckwheat is the most common buckwheat on the Palos Verdes Peninsula. This species is an important food plant for a variant of the square spotted blue butterfly that appears to be unique to the Palos Verdes Peninsula. The square spotted blue butterfly is endemic to the Palos Verdes Peninsula and is closely related to the El Segundo Blue Butterfly.

Table 5 lists locally, potentially sensitive plant species that were observed on the Palos Verdes Peninsula by Gale (1974), but for which recent records are lacking.

Table 5.
Plant Species That are Locally, Potentially Sensitive

Asclepias eriocarpa, Indian milkweed
Ambrosia chamissonis, beach bur
Cheanactis glabriscula, yellow pincushion
Lasthenia chrysostoma, goldfields
Thysanocarpus laciniatus, fringe pod
Lupinus chamisonis, dune lupine
Lupinus sparsifolius, Coulter's lupine
Phacelia parryi, Parry's Phacelia
Ambronia umbellata, sand verbena
Clarkia unguiculata, elegant Clarkia
Orobanche species, broom-rape
Platystemon californicum, cream cups
Delphinium parryi, blue larkspur
Ranunculus californicus, Cal. buttercup
Collinsia heterophylla, Chinese houses
Scrophularia californica, figwort
Verbena lasiostachys, common vervain
Viola pedunculata, Jonny jump up
Fritillaria biflora, chocolate lily

These species were reported from the Palos Verdes Peninsula, but have not been seen there in recent years. Additional field studies are needed to determine their status.

Source: Angelika Brinkmann-Busi 1994

COMMUNITIES OF CONCERN

The California Department of Fish and Game (CDFG) developed a classification system for the plant communities found within the state (Holland 1986). In this classification system those declining communities of concern to the CDFG were noted and information on these communities is currently compiled by the Natural Diversity Data Base. These communities include coastal sage scrub, southern cactus scrub, coastal bluff scrub, and riparian communities.

Coastal Sage Scrub

The Venturan and Diegan coastal sage scrub communities are declining. Current distributions of these communities are estimated at 10 to 15 percent of their original distributions, largely to urban development. Coastal sage scrub is a sensitive community because a large number of plant and animal species associated with this community are declining in abundance. The California gnatcatcher, listed as Threatened by the U.S. Fish and Wildlife Service, is largely restricted to coastal sage scrub habitats.

Southern Cactus Scrub

Southern Cactus Scrub is "threatened with local extirpation throughout its range, particularly in Orange County and western Riverside County where urbanization of undeveloped land is rampant" Magney (1992). This plant community is habitat for the coastal Cactus Wren which is being considered for federal listing.

Southern Coastal Bluff Scrub

Southern Coastal Bluff scrub is considered one of the rarest plant communities in coastal California. The development of coastal bluffs for residential land uses is largely responsible for this decline, although even limited foot-traffic (hiking) in this community results in the establishment of new trails through this habitat, leading to further erosion and habitat fragmentation. Introduced species, particularly iceplant, has proven to be detrimental to this habitat in gradually replacing the native species. On the Palos Verdes Peninsula, the spread of the annual iceplant *Mesembryanthemum crystallinum* poses a special threat to native annuals. Other nonnative invasives such as mustard, annual grasses, *Carpobrotus* species and Newzealand spinach contribute to the deterioration of coastal bluff scrub.

SENSITIVE ANIMAL SPECIES

The animal species of concern that either potentially occur or are known to occur in the Study Area are shown in Table 6. Two species listed as threatened or endangered by the U.S. Fish and Wildlife Service occur in the Study Area: the peregrine falcon and the California gnatcatcher. At the time this report was

prepared, a federal judge ruled that the U.S. Fish and Wildlife Service's listing of the gnatcatcher was procedurally flawed, effectively removing the species from the list of threatened or endangered species. It is not known whether the FWS (and its parent organization, the U.S. Department of the interior) will act to re-list the gnatcatcher.

Table 6.
Sensitive Animal Species in the Project Region

Species	Status[1] Federal	State/ Local	Comments
INSECTS			
Palos Verdes blue butterfly *Glaucopsyche lygdamus palosverdensis*	FE	-	The host plant for this species, ocean locoweed, occurs in the Study Area (some known locations are shown in Figure 5. This species is not currently known to occur in Rancho Palos Verdes. A survey of the hostplant areas in the Study Area did not reveal any sightings and inspection of the host plants themselves did not reveal any sign of its occurrence in the Study Area. During the course of baseline surveys for this report, a population was discovered east of the Study Area on the Naval Reservation in San Pedro.
Palos Verdes ground beetle, *Bembidion palosverdes*	-	-	This is a rare, specialized endemic ground beetle (Carabidae) that is found in the rocky intertidal and upper spray zone on the Palos Verdes peninsula.
Square spotted blue *Euphilotes bernardino bernardino - Euphilotes bernardino allyni*	-	-	The square spotted blue butterfly is endemic to the Palos Verdes Peninsula and is closely related to the El Segundo Blue butterfly.
MAMMALS			
Pacific pocket mouse *Perognathus longimembris pacificus*	FE*	CSC	Occurs in sage scrub and weedy plant communities on fine sandy soils. Historical records exist for this species on the Palos Verdes peninsula. The potential for its occurrence in the Study Area is low. Field surveys in the vicinity of the Study Area have not revealed its occurrence there. No individuals were captured during a preliminary small mammal live-trapping survey of the low quality habitats in the Study Area.
Chaetodipus fallax fallax San Diego pocket mouse	FC2	-	Rocky flats and slopes with scrub vegetation. Not observed during a preliminary live-trapping survey of parts of the Study Area. Potentially occurs there, however.
Lepus californicus bennettii San Diego black tailed jack rabbit	FC2	-	The Study Area is within the range of this subspecies, and several were observed onsite during the field surveys.
Neotoma lepida intermedia San Diego desert woodrat	FC2	-	Occurs in coastal sage scrub and chaparral. This species is a common resident of the Study Area, based on a preliminary live-trapping survey.

Species	Status[1] Federal	State/ Local	Comments
BIRDS			
Falco peregrinus Peregrine falcon	FE	SE	Captive-raised individuals released near the Study Area can be expected to utilize the site as foraging habitat.
Campylorhynchus bruneicapillus cousei San Diego cactus wren (coastal population)	FC2	CSC	Occurs in coastal sage scrub and chaparral where prickly pear cactus is common. 16 pairs (30 percent) of cactus wren pairs found on the Peninsula during 1993 were located in, or immediately adjacent to, the Rancho Palos Verdes Redevelopment Study Area.
Accipter cooperi Cooper hawk	-	CSC	Migrant individuals can be expected to forage in the Study Area, but there is not suitable nesting habitat there.
Elanus caeruleus Black-shouldered kite	-	P	The Study Area is not good habitat for this species, although it occasionally occurs there.
Lanius ludovicianus Loggerhead shrike	FC2	-	Occurs in a variety of habitats, including coastal sage scrub, open woodland, and grasslands, preferring the interfaces between these habitats. Potentially occurs onsite. Was observed during the field surveys.
Polioptila californica californica California gnatcatcher	FT	-	Found exclusively in coastal sage scrub habitat. 16 pairs of California gnatcatchers were found in the Study Area in 1993, which represents approximately 31 percent of the total population of the species found on the Palos Verdes Peninsula.
AMPHIBIANS AND REPTILES			
Phrynosoma coronatum blainvillei San Diego coast horned lizard	FC2	CSC	Occurs in coastal sage scrub, chaparral, and grassland habitats. No individuals or their sign were observed during a focused survey for this species in the Study Area and there is no suitable habitat for it in the Study Area.

[1] The list of sensitive animals that occur or potentially occur in the Study Area were obtained from the California Natural Diversity Database, EIRs for previous projects, scientific literature, and responses to the NOP.

CSC Species of Special Concern. Species considered by the Department of Fish and Game to be declining or vulnerable to extirpation and may be considered for listing or special management and protection measures.

E Endangered. Listed as endangered by state or federal agencies because the species is considered to be in danger of becoming extinct throughout all or a significant portion of its range.

PE Proposed Endangered. Species which the Fish and Wildlife Service have proposed be listed as endangered.

T Threatened. Listed as threatened by state or federal agencies for species likely to become endangered in the foreseeable future if declining population trends continue.

FC2 Federal Candidate 2. Species which are currently considered vulnerable to being threatened or endangered, but not enough data have been collected to support a proposal for listing.

P Protected. Species of eagles and migratory birds that are protected from harm, including the individual bird, its nest, and eggs, under the federal Bald Eagle and Migratory Bird Acts and the California Department of Fish and Game Code.

• The Pacific pocket mouse was emergency-listed as Endangered by the U.S. Fish and Wildlife Service.

Palos Verdes Blue butterfly, *Glaucopsyche lygdamus palosverdesensis*

The Palos Verdes Blue butterfly is federally listed as endangered. Until recently, the species had not been observed since 1981, and was thought by experts to be extinct. In the course of the field surveys for this report, the species was re-discovered at the Naval Fuel Reserve Station at San Pedro. The plant community, and its associated animal species, was almost certainly historically contiguous with coastal sage scrub and intermixed grass patches of the now fragmented natural community of the south and west facing slopes of the Palos Verdes peninsula.

The foodplant for the Palos Verdes blue butterfly is rattleweed, *Astragalus trichopus lonchus.* and deerweed, *Lotus scoparius.* The flight time is from late January to the end of March, although in any year the flight time will be in a four week window within that time frame depending on weather. The species was believed extinct (Mattoni, 1993) in its original habitat across the south facing slopes and bluff of Palos Verdes since last detected in 1983. Several experienced collectors and other biologists scoured all the known habitats over the entire season every year since the species was last seen. Foodplant numbers decreased for years over the mid to late 1980's as result of the prolonged drought. At that time the butterfly was only known on the rattleweed foodplant, but that was the sole food source where it was known. Rediscovery of the insect at the San Pedro Naval Fuel Depot indicated that the butterfly uses both the original foodplant and related deerweed as larval foodplant.

El Segundo blue butterfly (ESB), *Euphilotes bernardino allyni*, and **square-spotted blue butterfly,** *Euphilotes bernardino bernardino - Euphilotes bernardino allyni*

The El Segundo blue butterfly (ESB) is listed as Endangered by the U.S. Fish and Wildlife Service. This species is not known from the Study Area, nor is it expected to occur there. A few specimens of a species regarded as *Euphilotes bernardino* by Pratt (pers. comm.), have been observed on the south facing slopes of the Palos Verdes Peninsula and at George F. Canyon where both *Eriogonum parvifolium* and *E. cinerium* are used as foodplants. There is some uncertainty of the identity of these populations. The *Euphilotes bernardino* on the Palos Verdes Peninsula are difficult to distinguish from the El Segundo blue butterflies found on the El Segundo dues north of the Study Area (Mattoni, 1992). It may be appropriate to consider them to be ecotypes of the endangered El Segundo blue butterfly, but further work on this question is needed. The conservative position appears to be to classify this population with the ESB until a definitive study is undertaken.

Palos Verdes ground beetle, *Bembidion palosverdes* Kavanaugh & Erwin 1992

The Palos Verdes ground beetle is a rare, specialized endemic ground beetle (Carabidae) that is found in the rocky intertidal and upper spray zone on the Palos Verdes peninsula from Pt. Vincente to Pt. Fermin. This unique insect appears confined to habitat only associated with the littoral, and would be impacted by any erosion onto the zone. Impacts to this species must be considered in evaluating habitat modifications. Further specific studies are necessary to understand its ecology.

California gnatcatcher, *Polioptila californica californica*: This species occurs in the Study Area, as discussed in Section 5 of this report.

Coastal cactus wren, *Campylorhynchus brunneicapillus*: This species occurs in the Study Area, as discussed in Section 5 of this report.

Peregrine Falcon, *Falco peregrinus anatum*

The Peregrine falcon is listed as endangered by both state and federal agencies. Peregrine falcons nest in a variety of habitats, including the ledges of natural cliff faces, tall buildings, and bridges. Since 1982, The Predatory Bird Research Group, based at the University of California in Santa Cruz, has been releasing captive-hatched young (juveniles) in an effort to reestablish self-perpetuating populations in California. Between 1988 and 1991, 16 birds have been released at Marineland, located west of the project site. Five of the sixteen were released in 1991, and a number of birds are regularly sighted in the vicinity of Marineland. It is not known whether any of the released birds are yet nesting in the area. The cliff faces of the marine terraces along the coast of the Palos Verdes peninsula are considered historical nesting sites of the Peregrine falcon, and nesting is expected to be re-established there in the future. Currently, birds are frequently observed along the coast, where they forage opportunistically on birds, particularly introduced rock doves where they are abundant.

San Diego coast horned lizard, *Phrynosoma coronatum blainvillei*

The San Diego coast horned lizard is a category 2 candidate for federal listing and is protected from take and listed as a species of special concern by the California Department of Fish and Game. Horned lizards are found in a range of habitats, from chaparral, sage scrub to riparian edges, and are typically absent from open or barren fields/grasslands. Horned lizards feed on ants (*Pogonomyrmex* spp.) and other insects and for this reason, the presence of active ant mounds is one measure used to assess whether animals are likely to occur in an area (6 or more in a 10,000 square meter area is considered to be a sign of good foraging habitat for this species). Few such mounds were observed in the Study Area. Two other important characteristics of suitable habitat for this species are the presence of rodent burrows for refuge from predators and the absence of disturbed, compressed soil. Relatively few rodent burrows were noted during the horned lizard survey of the Study Area, and the substrates there are largely rocky or compressed as a result of previous grading.

The San Diego coast horned lizard is known from the San Pedro area and along the Los Angeles River. The Palos Verdes Peninsula may represent the northern coastal limit of this subspecies of horned lizards. Although this species historically occurred there, field surveys for it on the Palos Verdes Peninsula over the last 5 years have not yielded any confirmed sightings. The focused survey for the San Diego coast horned lizard that was conducted for 12 person-days (96 hours of surveying) from 5 to 7 May 1994 and on 10 May 1994 did not yield any sightings of this species or sign (scat). The habitat in the Study Area lacks appropriately sandy soils, the sage scrub habitat is largely too dense for horned lizards, and the low abundance of their prey species together indicate that there is not suitable habitat for this species in the Study Area.

Pacific Pocket Mouse, *Perognathus longimembris pacificus*

The Pacific pocket mouse is a small, seed-eating member of the kangaroo rat family of rodents, the Heteromyidae. The Pacific pocket mouse hibernates during the winter, emerging from mid-May to

early April. It has been reported to occur on sandy soils in several plant communities, including dune habitats, coastal sage scrub, and weedy fields (von Bloeker, 1931a,b, 1932; Meserve 1976). The biology of this species is not well known, in part because it has been rare since its discovery in the late 1800s near the Mexican border. Its preferred habitat appears to be open coastal sage scrub on fine, sandy soil. It has been recorded from the vicinity of El Segundo (Los Angeles County) immediately west of what is now the Los Angeles International Airport south along a narrow coastal strip to the Tijuana River (San Diego County) at the Mexican border. The Pacific pocket mouse has been collected north of the Palos Verdes Peninsula in El Segundo, Maria del Rey and south of the Study Area in Clifton and Wilmington (possibly along the Los Angeles River). There are no confirmed records of this species in the Study Area. The Pacific pocket mouse occurs in several plant communities, but always on sandy substrate. The habitat within the Study Area is largely or entirely unsuitable for this species.

The preliminary live-trapping survey that was conducted in the course of this study, as well as additional previous live-trapping efforts on the Palos Verdes Peninsula, were not focused surveys for the Pacific pocket mouse. Such focused surveys require four or more consecutive nights of trapping, and require a permit from the U.S. Fish and Wildlife Service because the species is listed as endangered. The permits for this species are currently being issued, but were not available when the study was undertaken. The Fish and Wildlife Service will be consulted regarding whether a focused survey for this species will be necessary.

5. California gnatcatcher and Coastal Cactus Wren

Summary

The 1993 total of 16 pairs of California gnatcatchers represented approximately 31 percent of the total population of the species found on the Palos Verdes Peninsula during that year; 30 percent of the total number of cactus wren pairs found on the Peninsula during 1993 were located in, or immediately adjacent to, the Rancho Palos Verdes Redevelopment Study Area. The NCCP scientific review panel "considers habitat that supports a portion of a local population with 5 or more pairs of gnatcatchers or cactus wrens to be significant" as a potential core area for coastal sage scrub conservation planning. Clearly, the Rancho Palos Verdes Redevelopment Study Area, especially those portions located at elevations above 400 feet, meets this criteria and should be considered to have value as a potential reserve for these species.

Introduction

On the Palos Verdes Peninsula, California gnatcatchers (*Polioptila californica*) and cactus wrens (*Campylorhynchus brunneicapillus*) occur, often sympatrically, in remnant fragments of coastal sage scrub. Both of these species have been identified as imperiled "target" species to be used as surrogates in the Coastal Sage Scrub Natural Community Conservation Planning (NCCP) process coordinated by the California Department of Fish and Game. The California gnatcatcher was listed as Threatened under the Federal Endangered Species Act on March 25, 1993, and the USFWS is currently in the process of considering whether similar protection is warranted for coastal populations of the cactus wren.

California Gnatcatcher Ecology and Distribution

In the U.S., California gnatcatchers are ecologically restricted to the coastal sage scrub plant community (Atwood 1993). Although gnatcatchers occasionally use riparian, chaparral, or disturbed grassland habitats adjacent to coastal sage scrub, especially in the non-breeding season, nearly all nesting records come from coastal sage scrub vegetation. The floristic composition of coastal sage scrub shows substantial geographic variation, although in general it is dominated by species such as *Artemisia californica*, *Salvia mellifera*, *S. leucophylla*, *S. apiana*, *Encelia californica*, and *Erigonum fasciculatum* (O'Leary 1990). California gnatcatchers do not appear to be obligately dependent on any particular plant species found in coastal sage scrub. However, certain subassociations may represent habitats that are marginal or unsuitable for gnatcatchers (Atwood 1993).

California gnatcatchers are permanent residents and are generally thought to remain in the same approximate home range from year-to-year. Studies of banded, breeding individuals have found home ranges that varied from 4.0-11.5 acres (X=6.5, S.D.=2.2, n=12) near Mission Viejo (Bontrager, pers. comm.), and from 13.3-39.2 acres (X=23.8, S.D.=7.7, n=7) near El Cajon (ERCE 1990a). This variability probably reflects differences in habitat quality, but no empirical studies have been completed in support this assumption. Seasonal differences also exist in home range size; of 11 pairs whose movements were mapped during both breeding and non-breeding seasons, all showed larger home ranges during the non-breeding season, with increases that varied from 2-163 percent (Bontrager, pers. comm.).

In the U.S., the breeding season of California gnatcatchers extends from mid-February through July, with most nest initiations occurring between mid-March and mid-May (Atwood 1993). Possible preferences

for particular plant species as sites for nest placement have not been adequately studied. Egg collection records obtained throughout southern California indicate that nests were most frequently found in *Artemisia californica* (Atwood 1993). Other studies have found most nests to be placed in *Artemisia californica*, *Erigonum fasiculatum*, and *Salvia apiana* (Atwood 1993).

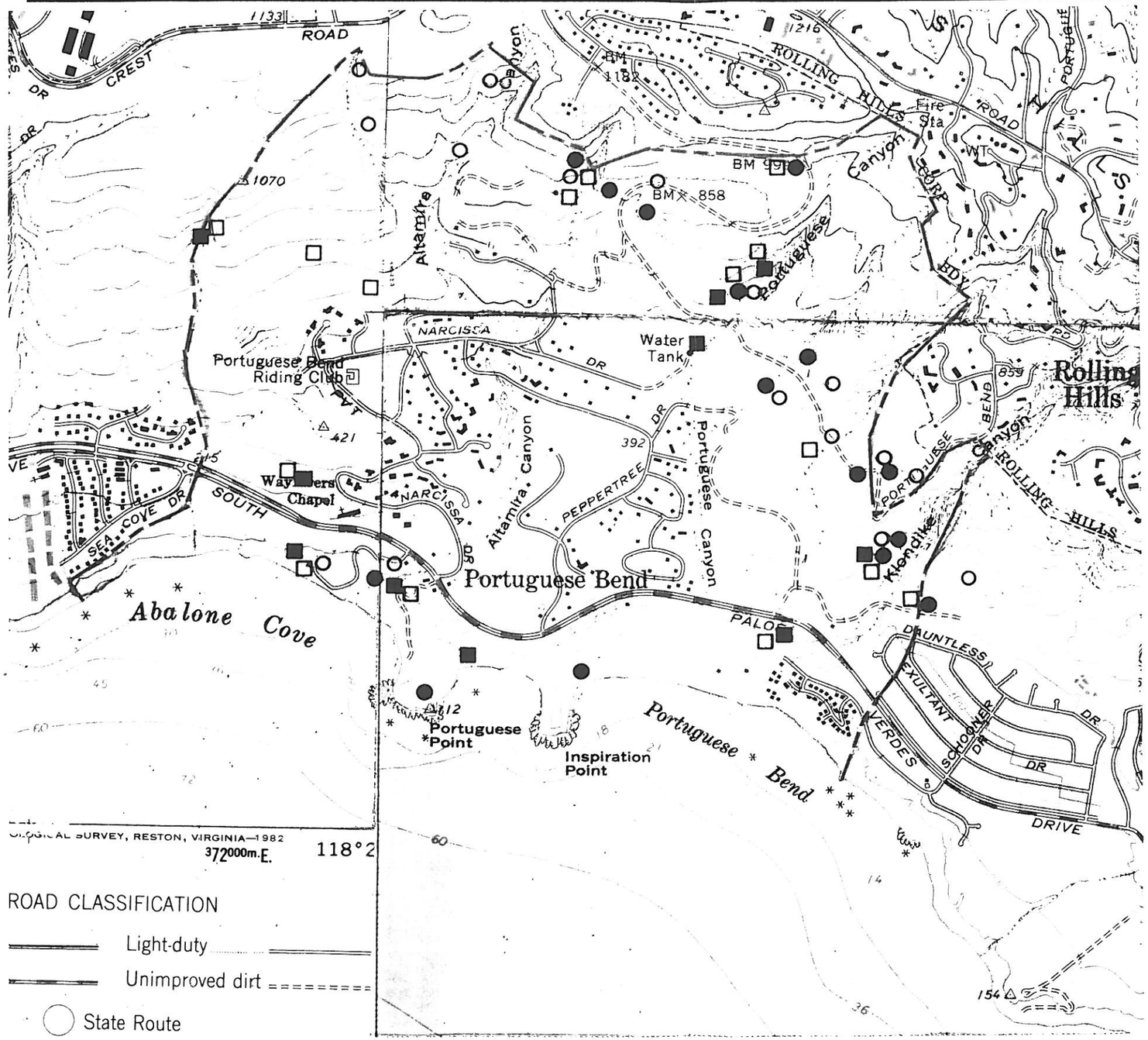
Based on egg collection data, the mean clutch size of the California gnatcatcher has been calculated to be 3.84 (S.D.=0.57, range = 2-5, mode = 4, n=61) (Atwood 1988). Roach (1989) obtained a similar mean clutch size of 3.67 (S.D. = 0.61, n=27) near Rancho San Diego. Near Mission Viejo, Bontrager (1991) calculated a mean clutch size of 3.88 (S.D. = 0.23, range = 3-5, n=33). Both pair members contribute to nest construction, which early in the breeding season may be protracted over an approximately 10-day period, but which may occur as rapidly as 4-5 days late in the season (Atwood 1993). Nests may be constructed and then abandoned, prior to laying, for no apparent cause (Atwood, unpubl. data; Roach 1989). The mean incubation period of California gnatcatcher eggs is approximately 14 days, with both pair members incubating. This is followed by an approximately 16-day period when both parents care for the nestlings (E. Tattersal, pers. comm.; Roach 1989). Bontrager (1991) found that "young birds accompanied their parents for 4-5 weeks." However, ERCE (1990b) described color-banded juveniles fledged in early May that remained with their parents through mid-September.

Published, quantitative studies of reproductive success in California gnatcatchers are few; however, rates of nest failure appear to be relatively high. Atwood (1993) provides a summary of potential predators on gnatcatcher nests in southern California. Bontrager (1991) stated that the species has "very low nesting success rates. In 1990, only 5 of 12 intensively followed pairs (42 percent) successfully fledged young and for the most part this was only after several nesting attempts."

Information on the dispersal behavior of California gnatcatchers is very limited, although focused studies on the Palos Verdes Peninsula and elsewhere are now underway. In general, it is believed that the species' obligate association with coastal sage scrub renders it unlikely to disperse across extensive barriers of non-coastal sage scrub habitat, especially non-native vegetation types (Atwood 1993). Some natural habitats, such as grasslands, may also act as effective barriers to dispersal. Major roads and freeway systems may act to isolate some populations from one another. Given the highly fragmented condition of coastal sage scrub in southern California, the lack of detailed data concerning gnatcatcher dispersal behavior may be the most important information gap that will need to be filled in order to develop effective conservation strategies for the species.

The only "major" California gnatcatcher population known to remain in Los Angeles County is located on the Palos Verdes Peninsula, where approximately 51 pairs were found on breeding territories during an intensive survey of the Peninsula during spring 1993 (Atwood unpubl. data). These pairs are fully isolated from other southern California populations of gnatcatchers by the surrounding megalopolis of Los Angeles (Atwood 1993).

CALIFORNIA GNATCATCHER, COASTAL CACTUS WREN LOCATIONS



- Approximate locations of California Gnatcatchers on, or immediately adjacent to, study area -- spring-summer 1993.
- Approximate locations of California Gnatcatchers on, or immediately adjacent to, study area -- February 1994.
- Approximate locations of Cactus Wrens on, or immediately adjacent to, study area -- spring-summer 1993.
- Approximate locations of Cactus Wrens on, or immediately adjacent to, study area -- February 1994.

Sixteen pairs of California gnatcatchers were located from 1 March - 1 May 1993 in, or immediately adjacent to, the Study Area (Figure 7). With the exception of 2 pairs found on the slopes above Abalone Cove, all of these pairs were located above the 400 foot elevation contour. During preliminary surveys conducted during February 1994, gnatcatchers were found at 15 sites in, or immediately adjacent to, the Study Area (Figure 7). 2); similar to 1993, all of the birds located north of Palos Verdes Drive (South) occurred in habitat above the 400 foot elevation contour. It should be underscored that the February 1994 results include several observations of single birds that may or may not eventually prove to represent breeding pairs; also, certain portions of the Study Area, especially located near the upper reaches of Altamira Canyon, have not been adequately surveyed to date.

Anecdotal observations in the Rancho Palos Verdes Redevelopment Study Area and other nearby portions of the Palos Verdes Peninsula suggest that California gnatcatchers (especially dispersing juveniles) may be expected to occasionally occur during the fall and winter months in virtually any areas of coastal sage scrub vegetation located in the study area. Areas of disturbed grassland with substantial shrub components (especially including dominant coastal sage scrub species) may also serve as dispersal corridors where extended field work would probably yield additional observations of the species.

Cactus Wren Ecology and Distribution

The coastal cactus wren, *Campylorhynchus brunneicapillus couesi* (in part), like the California gnatcatcher, is an obligate, permanent resident of the coastal sage scrub plant community. It is further restricted, however, by an almost exclusive association with prickly pear (*Opuntia littoralis*) and coastal cholla cactus (*O. prolifera*), which it uses for nesting and roosting sites (Rea and Weaver 1990). Virtually all details of the species' breeding biology are based on studies of Sonoran desert populations near Tucson (Anderson and Anderson 1973); little is known about the relevance of these studies to coastal cactus wren populations, which inhabit a strikingly different habitat type and are faced with less severe climatic conditions. Like California gnatcatchers, coastal cactus wrens are considered to be a sedentary species that, following juvenile dispersal, remains on a 2-10 acre territory for the remainder of its adult life (Rea and Weaver 1990; Anderson and Anderson 1973).

Cactus wrens usually build 4-6 roosting nests within their territories that are maintained year-round by both sexes (Anderson and Anderson 1973). Coastal populations typically place these nests in *Opuntia*, located approximately 1 m above the ground (Rea and Weaver 1990).

The breeding season of the coastal cactus wren begins in late February and can extend into August (Unitt 1984), with the possibility of two or three broods being fledged in favorable years. A clutch of 2-5 eggs is incubated by the female for approximately 16 days, with fledging occurring approximately 20 days after hatching (Anderson and Anderson 1973). Juvenile cactus wrens are dependent on their parents for 4-6 weeks following fledging, and may remain closely associated with them for several months (Anderson and Anderson 1973, Atwood, unpubl. data).

Information regarding the dispersal behavior of juvenile cactus wrens is very limited. Anderson and Anderson (1973) found, for desert populations, that females tended to move further from their natal territories than males. Survivorship of juvenile cactus wrens is also poorly known, but is probably quite

low as is typical of juvenile songbirds. Likely predators of cactus wrens in coastal southern California include accipiters, domestic cats, various snakes, and foxes.

Although other cactus wren populations persist in Los Angeles County, especially along the foothills of the San Gabriel Mountains, the pairs that persists on the Palos Verdes Peninsula are fully isolated from other southern California populations of the species (Atwood unpubl. data). During spring 1993, where approximately 50 pairs were found on breeding territories during an intensive survey of the Peninsula (Atwood unpubl. data).

Fifteen pairs of cactus wrens were located from 1 March - 1 May 1993 in, or immediately adjacent to, the Study Area (Figure 8). With the exception of 2 pairs found on the slopes above Abalone Cove, 1 pair located near Wayfarer's Chapel, and 1 pair one the slopes above the Portuguese Bend Club, all of these pairs were located at or above the 400 foot elevation contour. During preliminary surveys conducted during February 1994, cactus wrens were found at 10 sites located in, or immediately adjacent to, the Study Area (Figure 8).

Coastal Sage Scrub Distribution

A figure that provides a general overview of coastal sage scrub distribution in the general vicinity of the Rancho Palos Verdes Redevelopment Study Area is found in Appendix D of this report. These preliminary results are provided as part of a larger project aimed at mapping the distribution of coastal sage scrub vegetation throughout the Palos Verdes Peninsula NCCP subregion (Atwood unpubl. data).

6. The Natural Community Conservation Planning Effort

The Natural Communities Conservation Planning Effort

Assembly Bill 2172 identifies and provides for the regional and statewide protection and perpetuation of natural wildlife diversity, while allowing compatible and appropriate development and growth. This system is intended to foster cooperation among conservationists, landowners, and developers, and regulatory agencies in efforts to conserve long-term viable populations of California's native plants and animals in landscape units large enough to ensure their continued existence. The actual Natural Community Conservation Plan (NCCP) documents will be modeled after Habitat Conservation Plans, and will be expected to serve the information needs of both the state (2081) and federal (10a) permits if impacts to endangered species are anticipated. The guidelines and standards established under the Natural Community Conservation Act Participation in the NCCP is voluntary and by joining, the jurisdiction agrees to assist in the formation of subregional coastal sage scrub natural community conservation plans and to be sensitive to the potential impacts on the coastal sage scrub community.

The Fish and Wildlife Service, the Department of Fish and Game, and the City of Rancho Palos Verdes can be expected eventually to work together to prepare the goals, policies, and implementation strategies for the subregional NCCP programs. The Study Area is within the Palos Verdes Peninsula NCCP Subregion. The importance of this cooperative effort is that the NCCP document will serve as the Habitat Conservation Plan, a plan that guides the acquisition and management of habitats that support endangered and other special status species. The Palos Verdes Peninsula NCCP will serve as the HCP for impacts to the California gnatcatcher (until recently, a species listed as Threatened), coastal cactus wren and other as yet unidentified target sensitive species.

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PLANT LIST OF THE RANCHO PALOS VERDES REDEVELOPMENT AREA
(Taxonomy and nomenclature follow the new Jepson Manual)

		HABITAT				
		B	C	R	G	D
GYMNOSPERMAE						
PINACEAE	PINE FAMILY					
Pinus canariensis	Canary Isl. Pine* (introduced)					
Pinus halepensis	Aleppo Pine * (introduced)					
Pinus radiata	Monterey Pine * (introduced)					
ANGIOSPERMAE: DICOTYLEDONES						
AIZOACEAE	CARPET-WEED FAMILY					
Carpobrotus chilensis	Sea Fig *	x	x		x	x
Carpobrotus edulis	Hottentot Fig *	x	x		x	x
?Drosanthemum rosea	Iceplant *	x	x			
Mesembryanthemum crystallinum	Annual Icepl. *	x				
Mesembryanthemum nodiflorum	Little Icepl. *	x				
Tetragonia tetragonioides	New Zealand Spinach *	x				
AMARANTHACEAE	AMARANTH FAMILY					
Amaranthus blitoides	Prostrate Pig W.*				x	x
Amaranthus deflexus	Low Amaranth *				x	x
ANACARDIACEAE	SUMAC FAMILY					
Malosma laurina	Laurel Sumach		x			
Rhus integrifolia	Lemonadeberry	x	x			
Rhus ovata	Sugar Bush		x		x	
Schinus molle	Mexican Pepper *				x	x
Schinus terebinthifolius	Brasilian Pepper*				x	x
APIACEAE	CARROT FAMILY					
Apiastrum angustifolium	Wild Celery		x			
Daucus pusillus	Rattlesnake Weed		x			
Foeniculum vulgare	Fennel *				x	x
Sanicula arguta	Snake Root				x	
Sanicula crassicaulis	Sanicle		x		x	

		HABITAT				
		B	C	R	G	D
ASCLEPIADACEAE	MILKWEED FAMILY					
Asclepias fascicularis	Narrow Lf. Milkw.				x	
ASTERACEAE	SUNFLOWER FAMILY					
Acourtia (=Perezia) microcephala	Perezia		x			
Ageratina adenophora	Eupatory *			x		
Amblyopappus pusillus	Coast Weed	x				
Artemisia californica	Cal. Sagebrush	x	x			
Baccharis salicifolia	Mule Fat			x		
Baccharis pilularis	Coyote Bush		x		x	
Brickellia californica	Brickle Bush		x			
Centaurea melitensis	Yellow Starthis. *		x		x	x
Chrysanthemum coronarium	Garland Chrys. *				x	x
Conyza bonariensis	Little Horseweed*				x	x
Conyza canadensis	Horseweed *				x	x
Corethrogyne filaginifolia	Cudweed		x		x	
Encelia californica	Cal. Sunflower	x	x			
Erigeron foliosus	Fleabane		x			
Eriophyllum confertiflorum	Golden Yarrow		x			
Filago californica	Cal. Filago		x			
Gnaphalium bicolor	Two-Tone Everl.		x			
Gnaphalium californicum	Cal. Everlasting		x			
Gnaphalium canescens microcephalum	Felt-Leaf		x			
Gutierrezia californica	Matchweed		x		x	
Hazardia squarrosa	Sawtooth Goldenbush		x		x	
Hemizonia fasciculata	Tarweed		x		x	
Heterotheca grandiflora	Telegraph Weed		x		x	x
Isocoma menziesii (=Haplopappus venetus)	Coast Goldenbush	x	x			
Lactuca serriola	Compass Plant *				x	x
Malacothrix saxatilis	Cliffaster	x	x		x	
Picris echioides	Bristly Ox-Tongue*				x	x
Rafinesquia californica		x	x			
Senecio vulgaris	Common Groundsel *				x	x
Silybum marianum	Milk Thistle *					x
Sonchus asper	Prickly Sow Th.*				x	x
Sonchus oleraceus	Sow Thistle *				x	x
Stephanomeria virgata	Wand Chicory		x		x	
Xanthium strumarium	Cockle Bur					x

		HABITAT				
		B	C	R	G	D
BORAGINACEAE	BORAGE FAMILY					
Cryptantha clevelandii	Popcorn Flower	x	x			
Cryptantha species		x				
BRASSICACEAE	MUSTARD FAMILY					
Brassica nigra	Black Mustard *		x		x	x
Cakile maritima	Sea Rocket *	x				
Capsella bursa-pastoris	Shepherd's Purse *				x	x
Descurainia pinnata	Tansy Mustard		x		x	
Guillenia lasiophylla	Cal. Mustard		x			
Hirschfeldia incana	Mustard *				x	x
Lepidium nitidum	Shiny Peppergrass	x				
Lobularia maritima	Sweet Alyssum *				x	x
Raphanus raphanistrum	Radish *				x	x
Raphanus sativus	Wild Radish *				x	x
Sisymbrium altissimum	Thumble Mustard *				x	x
Sisymbrium irio	London Rocket *				x	x
CACTACEAE	CACTUS FAMILY					
Opuntia littoralis	Prickly Pear	x	x			
Opuntia oricola	Prickly Pear	x	x			
Opuntia prolifera	Coast Cholla	x	x			
CAPPARACEAE	CAPER FAMILY					
Isomeris arborea	Bladder Pod	x	x			
CAPRIFOLIACEAE	HONEYSUCKLE FAMILY					
Sambucus mexicana	Mexican Elderberry			x		
CARYOPHYLLACEAE	PINK FAMILY					
Silene gallica	Windmill Pink *					x
Spergularia bocconii	Sand Spurrey *					x
CHENOPODIACEAE	GOOSEFOOT FAMILY					
Aphanisma blitoides	Aphanisma	x				
Atriplex californica	Cal. Saltbush	x				

		HABITAT				
		B	C	R	G	D
Atriplex lentiformis	Quail Brush	x				
Atriplex pacifica	Pacific Saltbush		x			
Atriplex semibaccata	Australian S. *	x			x	x
Atriplex species	Saltbush *					x
Bassia hyssopifolia	Five-Hook Bassia*	x			x	x
Beta vulgaris	Garden Beet *	x				x
Chenopodium album	Lamb's Quater *				x	x
Chenopodium californicum	Cal. Goosefoot		x			
Chenopodium murale	Nettleleaf G. *				x	x
Salsola tragus	Russian Thistle *					x
Suaeda taxifolia	Sea Blite	x				
CONVOLVULACEAE	MORNING GLORY FAMILY					
Calystegia macrostegia	Morning Glory		x			
Convolvulus arvensis	Bindweed *				x	x
Convolvulus simulans	Little Fl. M.				x	
CRASSULACEAE	STONECROP FAMILY					
Dudleya lanceolata	Lancel.Live Forever		x			
Dudleya virens	Bright Green Dudl.	x				
CUCURBITACEAE	GOURD FAMILY					
Marah macrocarpus	Man Root	x	x			
EUPHORBIACEAE	SPURGE FAMILY					
Chamaesyce albo-marginata	Rattlesnake Weed		x		x	
Chamaesyce polycarpa ssp. polycarpa	Golondrinia		x		x	
Euphorbia peplus	Petty Spurge *				x	x
Ricinus communis	Castor Bean *			x		x
FABACEAE	PEA FAMILY					
Acacia cyclops	*			x	x	x
Acacia longifolia	Wax Myrtle *			x	x	x
Acacia species	*			x	x	x
Astragalus trichopodus lonchus	Ocean Locoweed		x		x	
Caesalpinia spinosa	* (introduced)					

		HABITAT				
		B	C	R	G	D
Ceratonia siliqua	Carob* (introduced)					
Coronilla valentina	*				x	
Lotus salsuginosus	Coastal Lotus	x	x			
Lotus scoparius	Deer Weed		x			
Lupinus succulentus	Arroyo Lupine		x		x	
Medicago lupulina	Black Medic *				x	x
Medicago polymorpha	Bur Clover *		x		x	x
Medicago sativa	Alfalfa *				x	x
Melilotus albus	White Sweet Cl.*				x	x
Melilotus indicus	Yellow S. Clover*				x	x
Robinia pseudo-acacia	Locust *					
Trifolium willdenovii (=tridentatum)	Tomcat Clover				x	
Trifolium hirtum	Clover *				x	x
Vicia sativa	Spring Vetch *				x	
GERANIACEAE	GERANIUM FAMILY					
Erodium cicutarium	Red Stem Filaree*				x	
Erodium moschatum	White Stem F. *				x	
Pelargonium zonale	Zonal Geranium *					x
HYDROPHYLLACEAE	WATERLEAF FAMILY					
Emmenanthe penduliflora	Whispering Bells		x			
Eucrypta chrysanthemi-folia	Eucrypta	x	x			
Phacelia cicutaria	Caterpillar Phacel.	x	x			
Phacelia viscida	Sticky Phacelia	x	x			
Phlistoma auritum	Fiesta Flower		x		x	
Pholistoma racemosum	White Fiesta Flower		x			
JUGLANDACEAE	WALNUT FAMILY					
Juglans californica	Cal. Black Walnut (introduced?)			x		
LAMIACEAE	MINT FAMILY					
Marrubium vulgare	Horehound *				x	x
Salvia columbariae	Chia	x				
Salvia leucophylla	Purple Sage		x			
Salvia mellifera	Black Sage		x			
Stachys ajogoides ssp. rigida	Hedge Nettle		x			

		HABITAT				
		B	C	R	G	D
LOASACEAE	STICK-LEAF FAMILY					
Mentzelia affinis	Hydra Stick-Leaf	x	x			
Mentzelia micrantha	Sticky Leaf		x			
MALVACEAE	MALLOW FAMILY					
Lavatera assurgentiflora	Malva Rosa *			x		
Malva nicaeensis	Bull Mallow *				x	x
Malva parviflora	Cheeseweed *				x	x
Malva sylvestris	Mallow *				x	x
MYOPORACEAE	MYOPORUM FAMILY					
Myoporum laetum	Myoporum *		x	x		x
MYRTACEAE	MYRTLE FAMILY					
Eucalyptus species	Gum Tree * (introduced)					
NYCTAGINACEAE	FOUR O'CLOCK FAMILY					
Mirabilis californica	Four O'Clock	x	x			
ONAGRACEAE	EVENING PRIMROSE FAMILY					
Epilobium canum	California Fuchsia		x			
OXALIDACEAE	WOOD-SORREL FAM.					
Oxalis pes-caprae	Bermuda Buttercup*				x	x
PAPAVERACEAE	POPPY FAMILY					
Eschscholzia californica	Calif. Poppy	x	x		x	
PITTOSPORACEAE						
Pittosporum undulatum *				x		

		HABITAT				
		B	C	R	G	D
PLANTAGINACEAE	PLANTAIN FAMILY					
Plantago lanceolata	English Plantain*				x	x
PLUMBAGINACEAE	LEADWORT FAMILY					
Limonium perezii	Sea Lavender *				x	x
Limonium sinuatum	Sea Lavender *				x	x
POLEMONIACEAE	PHLOX FAMILY					
Gilia angelensis	Angels Gilia				x	
Gilia capitata	Globe Gilia				x	
POLYGONACEAE	BUCKWHEAT FAMILY					
Eriogonum cinereum	Ashyleaf Buckwheat	x	x		x	
Eriogonum elongatum	Wand Buckwheat		x			
Eriog. fasciculatum	Cal. Buckwheat		x		x	
Eriogonum parvifolium	Seacliff Buckwheat	x				
Polygonum arenastrum	Knotweed *				x	x
Rumex crispus	Curly Dock *				x	x
PRIMULACEAE	PRIMROSE FAMILY					
Anagallis arvensis	Pimpernel *				x	x
RESEDACEAE	MIGNONETTE FAMILY					
Oligomeris linifolia	Oligomeris	x				
ROSACEAE	ROSE FAMILY					
Heteromeles arbutifolia	Toyon		x		x	
Prunus ilicifolia lyonii	Catalina Cherry				x	
RUBIACEAE	MADDER FAMILY					
Galium angustifolium	Shrubby Bedstraw		x			
Galium aparine	Cleavers *					x

		HABITAT				
		B	C	R	G	D
SALICACEAE	WILLOW FAMILY					
Salix lasiolepis	Arroyo Willow			x		
SCROPHULARIACEAE	FIGWORT FAMILY					
Antirrhinum nuttallianum	Purple Snapdragon		x			
Castilleja affinis	Paint Brush		x			
Castilleja exserta (=Orthocarpus purpurascens)	Owls Clover	x	x		x	
Keckiella cordifolia	Climbing Penstemon		x			
SOLANACEAE	NIGHTSHADE FAMILY					
Datura wrightii	Jimson Weed				x	
Lycium brevipes ssp. hassei	Catal.Desert Thorn	x				
Lycium californicum	Box Thorn	x				
Nicotiana glauca	Tree Tobacco *			x		x
Solanum douglasii	White Nightshade		x			
Solanum americanum (=nodiflorum)	Little White N.*					x
TROPAEOLACEAE	NASTURTIUM FAMILY					
Tropaeolum majus	Garden Nasturtium*		x			x
URTICACEAE	NETTLE FAMILY					
Parietaria hespera	Pellitory	x				
VALERIANACEAE	VALERIAN FAMILY					
Centranthus ruber	Red Valerian *				x	
ZYGOPHYLLACEAE	CALTROP FAMILY					
Tribulus terrestris	Puncture Vine *				x	x

MONOCOTYLEDONES

		HABITAT				
		B	C	R	G	D
ARECACEAE	PALM FAMILY					
Phoenix canariensis	Phoenix Palm *		x			
Washingtonia filifera	Fan Palm *		x			
CYPERACEAE	SEDGE FAMILY					
Cyperus species	Umbrella Plant			x		
LILIACEAE	LILY FAMILY					
Bloomeria crocea	Golden Stars		x		x	
Calochortus catalinae	Mariposa Lily		x		x	
Dichelostemma capitatum	Blue Dicks		x		x	
Yucca species	Spanish Bayonet *				x	
POACEAE	GRASS FAMILY					
Avena barbata	Slender Oat *				x	x
Avena fatua	Wild Oat *				x	x
Bromus diandrus	Ripgut Grass *				x	x
Brom. hordaceus (mollis)	Soft Brome *				x	x
Bromus madritensis rubens	Red Brome *				x	x
Cortaderia selloana	Pampas Grass *				x	x
Cynodon dactylon	Bermuda Grass *				x	x
Distichlis spicata	Salt Grass	x				
Leymus condensatus	Giant Rye		x		x	
Vulpia microstachys					x	
Vulpia myorus var. hirsuta	Foxtail Fescue *				x	
Vulpia myuros var. myorus	Rattail Fescue*				x	
Hordeum vulgare	Common Barley *				x	x
Hordeum murinum ssp. leporinum	Foxtail Barley *				x	x
Lamarckia aurea	Goldentop *				x	
Lolium multiflorum	Italian Rye *				x	
Lolium perenne	Ryegrass *				x	
Melica imperfecta	Chapparal Melica	x	x			
Muhlenbergia microsperma	Annual Muhly		x			
Nassella (Stipa) lepida	Needlegrass	x	x		x	
Nassella pulchra	Nodding Needleg.		x		x	
Pennisetum clandestinum	Kikuyu Grass *				x	x
Pennisetum setaceum	Fountain Grass *				x	x
Piptatherum (=Oryzopsis) miliacea	Smilo Grass *				x	x
Poa annua	Wintergrass *				x	

		HABITAT				
		B	C	R	G	D
Poa secunda ssp. secunda (=scabrella)					x	
Polypogon monspeliensis	Annual Beard Grass *			x		
Schismus species						x
Stenotaphrum secundatum	S. Augustin G.*					x

Habitat Types:
B - Beach/Coastal Bluff Scrub
C - Coastal Sage Scrub
G - Annual Grassland
R - Riparian or open channel habitat
D - Ruderal, disturbed
* non-native species

Scientific, Common Name

AMPHIBIANS

No amphibians were observed the Study Area

REPTILES OBSERVED IN THE STUDY AREA

Elgaria multicarinatus, alligator lizard
Sceloporus occidentalis, western fence lizard
Uta stansburiana hesperis, side-blotched lizard
Crotalus viridis, western diamondback rattlesnake

BIRDS OBSERVED IN THE STUDY AREA

Buteo jamaicensis, red-tailed hawk
Falco sparverius, American kestrel
Callipepla californica, California quail
Pavo cristatus, peacock
Charadrius vociferus, killdeer
Zenaida macroura, mourning dove
Bubo virginianus, great horned owl
Selasphorus sasin, Allens hummingbird
Colaptes cafer, northern flicker
Myiarchus cinerascens, ash-throated flycatcher
Sayornis nigricans, black phoebe
Selgidopteryx ruficollis, rough-winged swallow
Aphelocoma coerulescens, scrub jay
Psaltriparus minimus, bushtit
Corvus brachyrhynchos, American crow
Thyromanes bewickii, Bewick wren
Campylorhynchus brunneicapillus, cactus wren
Mimus polyglottus, northern mockingbird
Polioptila caerulea, blue-gray gnatcatcher
Phainopepla nitens, phainopepla
Lanius ludovicianus, loggerhead shrike
Sturnus vulgaris, European starling
Vermivora celata, orange-crowned warbler
Passer domesticus, house sparrow
Icterus galbula, northern oriole
Carpodacus mexicanus, house finch
Carduelis psaltria, lesser goldfinch
Pipilo erythropthalmus, rufous-sided towhee
Pipilo crissalis, California towhee
Zonotrichia leucophrys, white-crowned sparrow

Melospiza melodia, song sparrow

MAMMALS OBSERVED IN THE STUDY AREA OR SURROUNDING AREA

Terrestrial Mammals

Marsupials
Didelphis virginiana virginiana, Virginia opossum

Insectivores
Sorex ornatus, ornate shrew

Hares and rabbits
Sylvilagus audubonii sanctidiegi, desert cottontail
Lepus californicus bennettii, black-tailed jackrabbit

Rodents
Spermophilus beecheyi beecheyi, California ground squirrel
Thomomys bottae bottae, Botta pocket gopher
Chaetodipus californicus, California pocket mouse
Reithrodontomys megalotis, western harvest mouse
Perognathus longimembris pacificus, Pacific pocket mouse
Peromyscus maniculatus gambelii, deer mouse
Neotoma lepida intermedia, desert wood rat
Microtus longicaudus stephensi, long-tailed meadow mouse
Rattus rattus, roof rat (introduced)
Rattus norvegicus, Norway rat (introduced)
Mus musculus, house mouse (introduced)

Carnivores
Vulpes vulpes, red fox (introduced in southern California)
Urocyon cinereoargenteus californicus, gray fox
Procyon lotor psora, raccoon
Spilogale putorius phenax, spotted skunk
Mephitis mephitis holzneri, striped skunk

Appendix C

Biological survey of the Palos Verdes Peninsula
Arthropods: Insects

Rudi Mattoni, PhD
Agresearch Inc.

As part of this survey, we have begun systematic collections from a series of traps placed at 8 stations representing different plant community types across the Palos Verdes peninsula. Both pitfall and yellow pan traps are used. The pitfalls are quart wide mouth plastic containers set with the lip at ground level and covered with an approximate 6 inch square plywood roof. The roof is on legs to leave an approximate one inch space above the ground level. The yellow pans are pint wide mouth plastic containers, spray painted bright yellow set in open spaces. Both pans are filled with about 100 cc of ethylene glycoll as a preservative. We place a set of 3 pitfall traps at each station and sample them at two week intervals. Yellow pans are variable set out depending on the probability of their being found and vandalized. We rarely loose pitfall traps, but yellow pans are routinely lost wherever there is human foot traffic and they are visible.

The results of the survey to date include only two samplings. Both sample data sets to date are given on the attached tables. For the most part the sampling is incomplete, representing only two weeks on one year. However, these data serve as an important starting point for long term description of an integral part of the biota. They also represent a baseline for monitoring change over time. The geographic location of the stations is given on the general map of the region, figure 1.

The trap stations are described as follows:
Malaga perched dune: north. This station represents the richest plant species community of the Malaga dunes system, a small area at the west end of the Palos Verdes golf course lying to the south of Palos Verdes Drive. The station is just above Malaga Creek, between the Creek and the Drive. The overall dunes area covers about 1.5 acres and is mostly degraded with exotic trees (Brazilian peppers, acacia, eucalyptus, and a small leguminous tree. There is dense cover of European grasses (ripgut brome and oats) except in the small area of about 0.1 ac of the trap site which has a dunes shrub community dominated by Haplopappus ericoides, Rosa californica, Artemisia californica, A. dracunclus, Phacelia ramosissima, and Croton

californica. There is also a small patch of Rumex hymenosepalum. The plant community here is quite unique and a specialized insect community would be expected as well. To some extent the community should resemble that of the coastal dunes which have been well sampled at El Segundo.

Malaga perched dune: south. On the south side of Malaga Creek the dune rises abruptly forming a hill of about 8 acres lying between the creek and via Campesina. There are only two shrubs: Lotus scoparius and Croton californica with all open space covered with dense wild oats and ripgut brome. In spring there is substantial Lupinus truncatus present. The area was degraded as a eucalyptus savanna, but a cerambycid beetle now appears to be regulating these trees. This area is not now sampled.

San Pedro Navy Fuel Reserve. Two sites are being sampled. The first is in a typical coastal sage scrub fragment, overall about 30 acres in extent, on a south facing slope in dense Encelia californica, Eriogonum fasciculatum, and Lostus scoparius scrub. Nearby are Opuntia littoralis and Artemsia californica components. The second site is on a small hill created with native sandy soil moved by an adjacent area excavated for storage tank construction. An early successional stage of deerweed is vigorously recolonizing an area of about 2 acres.

Klondike Canyon. A sampling station is located on the ridge just north of the canyon in dense typical pristine coastal sage. Dominant plants include Encelia californica, Artemisia californica, Rhus integrifolia, Salvia leucophylla, and Eriogonum cinerium. A few individuals of Astragalus trichopodus, foodplant of the endangered Palos Verdes blue butterfly are present. A large plant community is represented and the collections will reflect what should be expected in such habitat.

Upper Portuguese canyon. This station is located among a similar plant community to the above, except it is found in secondary growth over fill placed with the creation of the Crenshaw right-of-way. Growth characteristics of the plants shows that in time succession will provide native habitat.

Kelvin Canyon. The plant community of this site is again dense coastal sage scrub which is pristine, but nearby the spring found. Together with the above sites the insect populations should be

identical even though each is separated by degraded cover. Thus random isolation effects may be measurable.

Crenshaw bench. This is a highly degraded site, about 1 km from the previous two stations. The sole cover here is dense exotic anise, the result of repeated discing. Occasional shrub seedlings occur in the anise morass. Data from the stations will provide insight concerning impacts of major local disturbance.

Rare and endangered insects known thus far from Palos Verdes
Listed Species
Palos Verdes blue butterfly (PVB)
Glaucopsyche lygdamus palosverdesensis

A recent review paper on this federally listed endangered species is attached in the appendix. Although all evidence indicated the species had been extinct since 1983, it was recently discovered at the Naval Fuel Reserve at San Pedro. The plant community, and its associated animal species, was almost certainly historically contiguous with coastal sage scrub and intermixed grass patches of the now fragmented natural community of the south and west facing slopes of the Palos Verdes peninsula.

Foodplant is rattleweed, Astargalus trichopus lonchus, and deerweed, Lotus scoparius. The flight time is from late January to the end of March, although in any year the flight time will be in a four week window within that time frame depending on weather. The species was believed extinct (Mattoni, 1993) in its original habitat across the south facing slopes and bluff of Palos Verdes since last detected in 1983. Several experienced collectors and other biologists scoured all the known habitats over the entire season every year since the species was last seen. Foodplant numbers decreased for years over the mid to late 1980's as result of the prolonged drought. At that time the butterfly was only known on the rattleweed foodplant, but that was the sole food source where it was known. Rediscovery of the insect at the San Pedro Naval Fuel Depot indicated that the butterfly uses both the original foodplant and related deerweed as larval foodplant. With the hopeful enhancement of the San Pedro population, a management choice to reintroduce the species into historical habitat becomes a viable option.

El Segundo blue butterfly (ESB)

A recent review paper on this insect is attached. A small population of this insects persists on a small perched dunes fragment

at Rat Beach. just north of the Malaga Creek mouth. The colony is in danger of loss by exotic invasive plants, but is otherwise secure (personal observation. Rick Rogers, summer 1993). The colony feeds solely on Eriogonum parvifolium. to which the type population can only use at the LAX El Segundo dunes. Only about 25 individual shrubs are to be found. Flight time is July and August.

A slight variant of the ESB is found on most native plant community fragments across the entire south facing slopes of the peninsula where both Eriogonum parvifolium and E. cinerium as are present and are used as foodplants. There is some contention as to the identity of these "intermediate" populations based on biochemical evidence. Morphologically, however, they can only be separated statistically from typical ESB (Mattoni, 1992). They may best be regarded as representing an ecotype of that endangered species and be legally recognized as endangered as well. A second population is found at George F. Canyon feeding on a combination of Eriogonum cinerium and E. fsciculatum. Only a few specimens are known making comparison difficult. These have been regarded as Euphilotes bernardino bernardino by Pratt (pers. comm.), but precise placement is not now possible. I feel the conservative position is to classify this population with the ESB as a matter of protection until a definitive study is undertaken.

Potential endangered species
Palos Verdes ground beetle
Bembidion palosverdes Kavanaugh & Erwin 1992 A rare narrow endemic ground beetle (Carabidae) restricted to rocky intertidal and upper spray zone on the Palos Verdes peninsula: Pt. Vincente to Pt. Fermin. June. This globally unique insect appears confined to habitat only associated with the littoral, but would be impacted by any erosion onto the zone and must be considered in evaluating habitat modifications. Further specific studies are necessary to understand its ecology.

INSECTS
The following annotated listing exhaustively describes two families of insects on the peninsula that can be considered well known.

DIPTERA: FLIES
BOMBYLIIDAE (BEEFLIES)

Studies by a small group of entomologists is expanding our knowledge of this family of flies across southern California. Because of the place of beeflies in wild communities as predators, parasitoids,

or hyperparasitoids in their larval stages; their adult role in pollination and ease of identification in the field; and of their diversity; beeflies have an increasing role in biota assessment. Most species of southern California are now described, although life histories are incompletely known and nectar resources are only now being recorded. During the late 1980's, what was believed to be a new species of Exoprosopa was found at Barkentine Canyon. In the process of a generic revision, A. Calderwood determined the entity as E. eremita, a widespread species of coastal California.

The following listing includes all species confirmed by collections across Palos Verdes. The listing gives in order: scientific name/locality/time of adult flight period/larval hosts/adult nectar resources. All species found at Barkentine Canyon and the Forestall quarry are expected across the entire south facing coastal sage scrub community of Palos Verdes. The data presented are the result of about 140 man hours of collecting during 1988, 1989 and 1993. With additional effort more species may be found. At least one additional species is expected.

Abbreviations. Localities: B, Barkentine Canyon; F, Forrestal quarry; M, Malaga canyon; R, Rat Beach; G. George F. canyon; H, Harbor Lake vicinity

Nectar sources: NN, nectaring not observed; EP, Eriogonum parvifolium, EC, E. cinerium, EF, E. fasciculatum.

1. Bombylius diegoensis /B/Feb.-Mar./ ground nesting bees, andrenids & anthophorids/Encelia californica
2. B. major /G/Mar.-Apr./larvae hosts as above/NN
3. B. breviabdominalis /F/June/larvae hosts as above/NN
4. Geminaria canalis /R/June/life history unknown/NN
5. Lepidanthrax sp. nr. orbites Bark/June/life history unknown/NN
6. Anastoechus melanohalteralis /Forrestal/May/life history unknown/NN
7. Thyridanthrax nugator /B, F, R, H/May-July/grasshopper eggs/EP,EC,EF
8. T. atrata /R, H/July-Aug./ Bembix sp. (sand wasps)/EP
9. T. miscella /B,G/May-June/ Bembix/EC
10. Villa lateralis /B/July-Sep/Noctuid moth larvae/EF, EC
11. V. agrippina /Hermosa, Carson/July-Sept/Noctuid moth larvae/NN
12. V. molitor /F/July-Sept/Noctuid moth larvae/EF, EC
13. Hemipenthes eumenea /McCarrol Canyon/Apr./hyperparasitic on tachnid flies and ichneumonid wasps/EF

Papilio rutulus. Western tiger swallowtail, foodplants sycamore, willow.

PIERIDAE Whites, yellows, orange-tips
Pieris protodice, Common White. Seasonal dimorphism. FP several species of introduced mustards. Earlier no doubt fed on native mustards, now extirpated from PV.
Anthocharis sara sara, Sara orange-tip. FP native mustards, but commonly today on several species of introduced mustards.
Colias eurytheme. Alfalfa butterfly, foodplants, deerweed, wild peas, rattlepod, alfalfa, found all year.

NYMPHALIDAE
Danaus plexippus. Monarch, foodplant, milkweeds. flies all year, has overwintering sites that should be regarded as endangered phenomena. Should be on watch list as populations are severely declining.
Vanessa virginiensis, American lady. FP all Gnaphalium species.
Nymphalis antiopa. Mourning cloak. FP willow
Vanessa cardui, Painted lady. FP pigweed, tobacco, many plants
Vanessa atalanta rubria, Red admiral, FP stinging nettle, baby tears
Liminitis lorquini. Lorquin Admiral, foodplant willow.

LYCAENIDAE
Calephelis nemesis, Dusky metalmark. FP mulefat, California bush sunflower (Encelia californica). March 15, 1994 first observed in region by Rick Rogers: George F. Canyon associated with Encelia. Should be on a watch list.
Strymon melinus, Common hairstreak. FP buckwheats, deerweed, many plants
Brephidium exilis, Pygmy blue. FP Atriplex , Salsola, Chenopdium. Common, flies throughout year.
Leptotes marina, Marina blue. FP Deerweed, Plumbago, many ornamental legumes, common, flies throughout year if not too cold.
Plebejus acmon acmon, Acmon blue. FP buckwheats, deerweed. June-Sept.
Everes amyntula, Western tailed blue. (extirpated) foodplant rattleweed. The species was last seen in 1985, two years after the south slope Palos Verdes blue populations were extirpated. Its foodplant populations were substantially reduced by drought and weed control, as well as land conversion, during the early 1980's. Land conversion also fragmented populations. The species

has been declining throughout the Los Angeles basin. This species should be reintroduced.
Euphilotes bernardino allyni, El Segundo blue (see above)
Euphilotes bernardino bernardino - Euphilotes bernardino allyni, "square spotted blue" (see above)
Glaucopsyche lygdamus palosverdesensis. Palos Verdes blue (see above)

HESPERIDAE
Hylephila phyleus. Fiery skipper, FP "grasses" Common, flies throughout year.
Atalopetes campestris. Field skipper, FP "grasses" Summer.
Polites sabuleti sabuleti. Sandhill skipper, FP "grasses" but prefers Distichlis spicata.
flies in summer.
Lerodea eufala Eufala skipper. FP "grasses" rare, flies in summer.
Note. all the above skippers are grass feeders. Insufficient research has been done to understand their specific foodplant requirements, whether they are specific or have broad host ranges, including an accurate relative value of native and exotic species. However, my observations under free choice conditions is they entirely prefer native perennial grass species as Melica imperfecta. Stipa spp., Distichlis spicata. Hence the role of foodplant in determining distribution and population regulation is completely unknown for these animals.
Erynnis zarucco funeralis, Funereal skipper. FP deerweed. Restricted to deerweed patches on east and southeast parts of PV. Flies from Feb.-Sept.

Breeding resident species, larval foodplants introduced species (10)
PAPILIONIDAE
Papilio zelicaon. Anise swallowtail, foodplant fennel, found all year

PIERIDAE
Pieris rapae. Cabbage butterfly, foodplant mustards, nasturtium. This species was introduced into the United States in about 1870. Flies all year.
Pieris protodice. Common white, foodplant mustards
Phoebis sennae marcellina. Cloudless sulfur, foodplant Cassia, flies all year.
Eurema nicippe. Nicippe sulfur, foodplant Cassia, flies all year.

NYMPHALIDAE

Vanessa carye anabella. West Coast lady, foodplant pigweed,
Precis coenia. Buckeye, foodplant plantains, flies all year
Agraulis vanillae. Gulf fritillary, foodplant passionvine. Common, all year.

HESPERIDAE
Pyrgus communis albescens, Western checkered skipper, FP cheeseweed
Paratrytone melane. Umber skipper, foodplant "grasses", found in damp and irrigated areas. Dispersed from the tropics. Usually found in summer.

Rare, sporadic migrant species, not breeding in the Los Angeles basin (7)
PAPILIONIDAE
Papilio philenor. Pipevine swallowtail, foodplant Aristolochia. Rare migrant from Mexico

PIERIDAE
Pieris chloridice beckerii, Becker's white. FP bladderpod. This rare species at Palos Verdes is certainly a rare sporadic migrant although the foodplant is widespread, and found at the site. Whether it in fact breeds in the Los Angeles basin is undetermined. Common on both high and low deserts.
Zerene caesonia. Southern dogface, Foodplant clovers. Usually seen in summer.
Migrates from the low desert.
Nathalis iole. Dwarf yellow, Foodplants, several Asteraceae. Usually seen in July, August. Migrates from the low desert.

NYMPHALIDAE
Danaus gilippus strigosus. Striated Queen, Foodplant vine milkweeds that are only found in the low desert. Several are sighted every year, at any time.
Euptoieta claudia. Variegated fritillary, Foodplants, violet and passion flower. Migrates from Mexico

LYCAENIDAE
Hemiargus isola alce. Mexican Blue, foodplants, many legumes. usually found every summer, but difficult to separate in nature from the marine blue.

Ground dwelling arthropods

Quantitative estimates have begun at stations listed in the report, above. Data to date given in the attached appendices. Many arthropods are collected in the traps other than insects, including many species of spiders, mites, isopods, and other classes. Every specimen is included in the results, as well as the rare small vertebrate. All trap stations are serviced by Rick Rogers and Tim Dahlum. Identifications are the responsibility of Rick Rogers. Specimens are identified to the lowest category for which we have information. All specimens are retained and unknowns are being sent to specialists, at least for groups that have specialists.

Yellow Pan attracted flying insects

Quantitative estimates have begun at stations listed in this report above. Data to date given in the attached appendices. Acknowledgments are cited above.

14. H. lepidota /B, F, R/July/hyperparasitic on tachnid flies and ichneumonid wasps/EP, EC
15. H. inops /B/June/hyperparasitic on tachnid flies and ichneumonid wasps/ pigweed
16. Paravilla fulvacomma /B/May June/anthophorid Diadacia bees (Opuntia nectar gatherers, females seen entering chimney like bee nest structures above ground. Rogers)/EF
17. P. fumosa /F/Aug.- Sept/anthophorid bees/EF
18. P. californica /B/June/anthophorid bees/EF
19. Chrysanthrax eudora /F/Aug.- Sept/hyperparasitic on myzenid wasps that parasitize scarab beetle larvae of other wasps/EF, EC
20. C. vana /F/July/hyperparasitic on myzenid wasps/EC, EF
21. Neodiplocampta mira /F/Aug.-Sept/unknown/EF, EC
22. Peocilanthrax arethusa /F, Torrance/May-Aug./Noctuid moth larvae/ Haplopappus sp.
23. Ligyra gazophalax /M, R, H, Torrance/hyperparasite on Campsomeris a parasite of Parathyce beetles/EP at Rat Beach
24. Mythicomyia nr. marginata /B/Apr.-June/anthophorid bees with many on one bee larva/Euphorbia, low herbs
25. Phthiria sp./B/June/grasshopper eggs/EC, EF
26. Exoprosopa doris /F, B/June/wasp larvae/EF. EC
27. Exoprosopa eremita /B/Apr-June/unknown/NN

LEPIDOPTERA
PAPILIONOIDEA (BUTTERFLIES)

Knowledge of butterflies, their life histories, phenology, distribution, etc. is more comprehensive than for any group of animals excepting birds. Because of this robust database, conclusions regarding parameters of concern to conservation biology can be made with relative certainty. The following listing classifies all Palos Verdes butterflies into three categories:

Breeding resident species, larval foodplants native species (24)

Breeding resident species, larval foodplants introduced species (4)

Rare, sporadic migrant species. not breeding in the Los Angeles basin, foodplant may or may not be present (5)

Breeding resident species, larval foodplants native species Non-native plants that serve as alternate foodplants are underlined. ()
PAPILIONIDAE Swallowtails

V. PITFALL TRAPS

COLEOPTERA

			C-1 Staphylinid	C-2 Elaterid	C-3 Carabid Calathus ruficollis	C-4 Tenebrionid Cratidus osculans	C-5 Carabid Pterostichus sp	C-6 Tenebrionid Ekodes gigantea	C-7 Ekodes sp.	C-8 Nyctoporis carinata	C-9 Staphylinid Subfam. Tachyporin	C-10 Curculionid (small steneler)	C-11 Staphylinid (very small)	C-12 staphylinid (med size)
alaga – 1	Feb 8, 1994		1	2		7							1	
M – 2						1	1							1
M – 3						2								
ondike – 1								1	1					
K – 2														
K – 3								1	1					
tugese – 1				1	1		1				4			
P – 2							1	1		1	1		1	
P – 3									3		2			

Phorid D-1 (small)			1		1				
Anthomyiid D-2 (spotted wings)	2	2	1	1		1	1	12	
D-3 Anthomyiid (large)		3	1						
D-4 Calliphorid Calliphora sp.	1	3	1						
D-5 Anthomyiid (small)	1	3			1				
D-6 Sarcophagid (small)				1		1			
D-7 Scatophagid (dark wings)						1			
Hy-1 Iridomyrmex humilis				14	3	9			2
very small Hy-2 Ant	2		1						
D-8 Phorid (large)	1								
D-9 Myretophili (small)	2								
D-10 Helcomyzid					1		2		
D-11 Anthomyiid (spotted wing orange legs)						1	1		
Hy-3 Formica sp.							1		

ARACHNIDS & OTHER ARTHROPODS

D. crocata	A-3 Lycosid (sm. or juv.)	A-4 Lycosid (large, dark)	A-5 Opiliones (small)	A-6 Spirobolid/ millipede	A-7 Isopod Porcellio (sp.)	A-8 Isopod Armadillium	A-9 Isopod (sm. or juv.)	A-10 Thomisid Xysticus sp.	A-11 Gnaphosid (sm., dark)	A-12 Philodromid	A-13 v. sm. red mite
		1	1								
		1									
	4			3				1			
1	1	1							1		
	1	2			3	1	3			1	1
		2			4	1					
	1						1		1		
	1						1				
1	1				1						

O-1 Arenivaga
O-2 Stenopelmat.
O-3 Ceuthophilus calif. ?
T-1 Machilid
I-1 Termite
C-1 Entomboryid

V. PITFALL TRAPS

COLEOPTERA

	K-1 Staphylinid	K-2 Elaterid #1	K-3 Carabid Calathus ruficollis	K-4 Tenebrionid Craticus ossea	K-5 Carabid Pterostichus s	K-6 Tenebrionid Eletodes gigant	K-7 Eletodes sp.	K-8 Nyctoporis carinata	K-9 Staphylinid Subfam. Tachypor	K-10 Curculionid (small snout	K-11 Staphylinid (v. sm.)	K-12 Staphylinid (med size)	K-13 Lathridiid #1	K-14 Carabid (v. sm.)	K-15 Eugenid	K-16 Tenebrionid (m. size, stout	K-17 Histerid (small)	K-18 Tenebrionid Anonoma costatum	K-19 Elaterid #2	K-20 Lathridiid #2	K-21 Eletodes acuticauda	K-22 Colydiid	K-23 Eletodes gracilis (slim	K-24 Histerid (giant)
Laga – 1 Mar. 10, 1994		1	2	5	2													1	1	1				
M – 2				1	1															1				
M – 3		1		1							1													
Sandike – 1				1	2										1						1			
K – 2						1	1		1															
K – 3					1	2	7		1															
Artegesa – 1					1	2	2														1			
P – 2					3		1		1															
P – 3					1		1																	
Irvin – 1					2																			
C – 2				1		1	11																	
C – 3			1	2		1			1													1		
Tunnel – 1			1	4	1	1																		
F – 2				2	1	2	9																	
F – 3				4			5		1															
Spiration – 1			1				2	1																
1 – 2				3			3																	
W/ Base – 1					1																	3		
N – 2				1																		1	1	
N – 3													1											

A-2 Dysderid D. crocata	A-3 Lycosid (Sm. or Juv.)	A-4 Lycosid (large, dark)	A-5 Opiliones (small)	A-6 Spirobolid/ "milipede"	A-7 Isopod Porcellio (lg.	A-8 Isopod Armadillium	A-9 Isopod (sm. or Juv.)	A-10 Xystic Atomisid	A-11 Gnaphosid (sm. dark)	A-12 Phiboctom	A-13 mite (v. sm. red)	A-14 Milipeds (large)	A-15 Scutipedes	A-16 Geophilomc centipede	A-17 milipede (small slender	A-18 Scorpion Vejovidae	A-19 Clubionid Castianeira	A-20 milipede (sm. banded)	A-21 Gnaphosid (lg. black	A-22 Loxoscheles Loxosceles	A-23 Gnaphosid (lg. pale sp	A-24 Salticid (sm. dark)	A-25 Lycosid, pale long banded	A-26 Lycosid or banded legs
	2												1		1									
1			1			4		1			2					1	3							
3		2			2	3		1																
2						1			1		6						1							
		1			1	18			1								1	1						
		1				4			1												1			
						2		1																
						13																		
		1				10		1	1								1							
3					1	2											4		1					
1						12			1															
1					1	18																		
1						18																		
1					1	23											11							
					6	32																		
			1		1																1	1	1	
		1	1																					
		2																				1		2

OTHER ORDERS

[illegible]	O-2 Stenopelmat.	O-3 Ceuthophilus calif. ?	T-1 Machilid	I-1 Termite	C-1 Entombryid	Col-2 Sminthurid	O-4 Small black cockroach	T-2 Lepismatid Allacrotelsa	H-1 Reduviid (very slender)	P-1 Psocid	O-5 Myrmecophila sp. (ant cricket)	H-2 Lygaeid (lg. forelegs)	Ho-1 Cicadellid #1
		1	3			2							
1							1						
						1	2						
			1		4			1	1				
			2										1
		1	2		3								
					3	4							
	1				3	7							
	1	1				3							
					3	15							
		1			2			1			1		
			1										
										1			
	1												
	1							1					
	2												

DIPTERA & HYMENOPTERA

	Anthomyiid D-2 (spotted wings)	D-3 Anthomyiid (large)	D-4 Calliphorid Calliphora sp.	D-5 Anthomyiid (small)	D-6 Sarcophagid (small)	D-7 Scatophagid (dark wings)	Hy-1 Iridomyrmex humilis	Hy-2 Leptothorax andrei	D-8 Phorid (large)	D-9 Mycetophilid (small)	D-10 Helomyzid	D-11 Anthomyiid (spotted wings)	Hy-3 Formica moki	Hy-4 Pheidole hyatti?	Hy-5 Formicinae (round head)	Hy-6 Dryinid (wingless ♀)	Hy-7 Yellow jacket Vespa sp.	Hy-8 Bombus vosnesenskii	Hy-9 Bombus edwardsii	D-12 Calliphora sp. (large)	D-13 Mycetophilid (large)	D-14 Sarcophaga sp. (med. size)	D-15 Phorid (lg. black)	Hy-10 Apis mellifera	D-16 Tachinid sp. (blk., long leg)
1		1	3				9	3		4															
		2					3		1																
		2								1															
			1		1		5	1		2															
	1									2														2	
	1						7			1										1					
					1	1	19		1		2		20												
	1		2			2	19						8												2
							16						1												
							2			4			2												1
					2	1	2						3												
	1						6				1							1							
																	1		1			4			
1							9	1	7						1	1									
			1				5	1		2	1														
			1				1		2	3											1				
							2			1															
			7								2														
			·1				3			2															

Appendix D

ASSESSMENT OF CALIFORNIA GNATCATCHER, CACTUS WREN, AND COASTAL SAGE SCRUB DISTRIBUTION IN THE RANCHO PALOS VERDES REDEVELOPMENT PROJECT AREA

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BACKGROUND

On the Palos Verdes Peninsula, California gnatcatchers (*Polioptila californica*) and cactus wrens (*Campylorhynchus brunneicapillus*) occur, often sympatrically, in remnant fragments of coastal sage scrub. Both of these species have been identified as imperiled "target" species to be used as surrogates in the Coastal Sage Scrub Natural Community Conservation Planning (NCCP) process coordinated by the California Department of Fish and Game. The California gnatcatcher was listed as Threatened under the Federal Endangered Species Act on March 25, 1993, and the USFWS is currently in the process of considering whether similar protection is warranted for coastal populations of the cactus wren.

CALIFORNIA GNATCATCHER ECOLOGY AND DISTRIBUTION

In the U.S., California gnatcatchers are ecologically restricted to the coastal sage scrub plant community (Atwood 1993). Although gnatcatchers occasionally use riparian, chaparral, or disturbed grassland habitats adjacent to coastal sage scrub, especially in the non-breeding season, nearly all nesting records come from coastal sage scrub vegetation. The floristic composition of coastal sage scrub shows substantial geographic variation, although in general it is dominated by species such as *Artemisia californica*, *Salvia mellifera*, *S. leucophylla*, *S. apiana*, *Encelia californica*, and *Erigonum fasciculatum* (O'Leary 1990). California gnatcatchers do not appear to be obligately dependent on any particular plant species found in coastal sage scrub. However, certain subassociations may represent habitats that are marginal or unsuitable for gnatcatchers (Atwood 1993).

California gnatcatchers are permanent residents and are generally thought to remain in the same approximate home range from year-to-year. Studies of banded, breeding individuals have found home ranges that varied from 4.0-11.5 acres ($\bar{X}$=6.5, S.D.=2.2, n=12) near Mission Viejo (Bontrager, pers. comm.), and from 13.3-39.2 acres ($\bar{X}$=23.8, S.D.=7.7, n=7) near El Cajon (ERCE 1990a). This variability probably reflects differences in habitat quality, but no empirical studies have been completed in support this assumption. Seasonal differences also exist in home range size; of 11 pairs whose movements were mapped during both breeding and non-breeding seasons, all showed larger home ranges during the non-breeding season, with increases that varied from 2-163 percent (Bontrager, pers. comm.).

In the U.S., the breeding season of California gnatcatchers extends from mid-February through July, with most nest initiations occurring between mid-March and mid-May (Atwood 1993). Possible preferences for particular plant species as sites for nest placement have not been adequately studied. Egg collection records obtained throughout southern California indicate that nests were most frequently found in *Artemisia californica* (Atwood 1993). Other studies have found most nests to be placed in *Artemisia californica*, *Erigonum fasiculatum*, and *Salvia apiana* (Atwood 1993).

Based on egg collection data, the mean clutch size of the California gnatcatcher has been calculated to be 3.84 (S.D.=0.57, range = 2-5, mode = 4, n=61) (Atwood 1988). Roach (1989) obtained a similar mean clutch size of 3.67 (S.D. = 0.61, n=27) near Rancho San Diego. Near Mission Viejo, Bontrager (1991) calculated a mean clutch size of 3.88 (S.D. = 0.23, range = 3-5, n=33). Both pair members contribute to nest construction, which early in the breeding season may be protracted over an approximately 10-day period, but

which may occur as rapidly as 4-5 days late in the season (Atwood 1993). Nests may be constructed and then abandoned, prior to laying, for no apparent cause (Atwood, unpubl. data; Roach 1989). The mean incubation period of California gnatcatcher eggs is approximately 14 days, with both pair members incubating. This is followed by an approximately 16-day period when both parents care for the nestlings (E. Tattersal, pers. comm.; Roach 1989). Bontrager (1991) found that "young birds accompanied their parents for 4-5 weeks." However, ERCE (1990b) described color-banded juveniles fledged in early May that remained with their parents through mid-September.

Published, quantitative studies of reproductive success in California gnatcatchers are few; however, rates of nest failure appear to be relatively high. Atwood (1993) provides a summary of potential predators on gnatcatcher nests in southern California. Bontrager (1991) stated that the species has "very low nesting success rates. In 1990, only 5 of 12 intensively followed pairs (42%) successfully fledged young and for the most part this was only after several nesting attempts."

Information on the dispersal behavior of California gnatcatchers is very limited, although focused studies on the Palos Verdes Peninsula and elsewhere are now underway. In general, it is believed that the species' obligate association with coastal sage scrub renders it unlikely to disperse across extensive barriers of non-coastal sage scrub habitat, especially non-native vegetation types (Atwood 1993). Some natural habitats, such as grasslands, may also act as effective barriers to dispersal. Major roads and freeway systems may act to isolate some populations from one another. Given the highly fragmented condition of coastal sage scrub in southern California, the lack of detailed data concerning gnatcatcher dispersal behavior may be the most important information gap that will need to be filled in order to develop effective conservation strategies for the species.

The only "major" California gnatcatcher population known to remain in Los Angeles County is located on the Palos Verdes Peninsula, where approximately 51 pairs were found on breeding territories during an intensive survey of the Peninsula during spring 1993 (Atwood unpubl. data). These pairs are fully isolated from other southern California populations of gnatcatchers by the surrounding megalopolis of Los Angeles (Atwood 1993).

Sixteen pairs of California gnatcatchers were located from 1 March - 1 May 1993 in, or immediately adjacent to, the Rancho Palos Verdes Redevelopment Project Area (Fig. 1). With the exception of 2 pairs found on the slopes above Abalone Cove, all of these pairs were located above the 400 foot elevation contour. During preliminary surveys conducted during February 1994, gnatcatchers were found at 15 sites in, or immediately adjacent to, the project area (Fig. 2); similar to 1993, all of the birds located north of Palos Verdes Drive (South) occurred in habitat above the 400 foot elevation contour. It should be underscored that the February 1994 results include several observations of single birds that may or may not eventually prove to represent breeding pairs; also, certain portions of the project area, especially located near the upper reaches of Altamira Canyon, have not been adequately surveyed to date.

Anecdotal observations in the Rancho Palos Verdes Redevelopment Project Area and other nearby portions of the Palos Verdes Peninsula suggest that California gnatcatchers (especially dispersing juveniles) may be expected to occasionally occur during the fall and winter months in virtually any areas of coastal sage scrub vegetation located in the study area. Areas of disturbed grassland with substantial shrub components (especially including dominant coastal sage scrub species) may also serve as dispersal corridors where extended field work would probably yield additional observations of the species.

CACTUS WREN ECOLOGY AND DISTRIBUTION

The coastal cactus wren, *Campylorhynchus brunneicapillus couesi* (in part), like the California gnatcatcher, is an obligate, permanent resident of the coastal sage scrub plant community. It is further restricted, however, by an almost exclusive association with prickly pear (*Opuntia littoralis*) and coastal cholla cactus (*O. prolifera*), which it uses for nesting and roosting sites (Rea and Weaver 1990). Virtually all details of the species' breeding biology are based on studies of Sonoran desert populations near Tucson (Anderson and Anderson 1973); little is known about the relevance of these studies to coastal cactus wren populations, which inhabit a strikingly different habitat type and are faced with less severe climatic conditions. Like California gnatcatchers, coastal cactus wrens are considered to be a sedentary species that, following juvenile dispersal, remains on a 2-10 acre territory for the remainder of its adult life (Rea and Weaver 1990; Anderson and Anderson 1973).

Cactus wrens usually build 4-6 roosting nests within their territories that are maintained year-round by both sexes (Anderson and Anderson 1973). Coastal populations typically place these nests in *Opuntia*, located approximately 1 m above the ground (Rea and Weaver 1990).

The breeding season of the coastal cactus wren begins in late February and can extend into August (Unitt 1984), with the possibility of two or three broods being fledged in favorable years. A clutch of 2-5 eggs is incubated by the female for approximately 16 days, with fledging occurring approximately 20 days after hatching (Anderson and Anderson 1973). Juvenile cactus wrens are dependent on their parents for 4-6 weeks following fledging, and may remain closely associated with them for several months (Anderson and Anderson 1973, Atwood, unpubl. data).

Information regarding the dispersal behavior of juvenile cactus wrens is very limited. Anderson and Anderson (1973) found, for desert populations, that females tended to move further from their natal territories than males. Survivorship of juvenile cactus wrens is also poorly known, but is probably quite low as is typical of juvenile songbirds. Likely predators of cactus wrens in coastal southern California include accipiters, domestic cats, various snakes, and foxes.

Although other cactus wren populations persist in Los Angeles County, especially along the foothills of the San Gabriel Mountains, the pairs that persists on the Palos Verdes Peninsula are fully isolated from other southern California populations of the species (Atwood unpubl. data). During spring 1993, where approximately 50 pairs were found on breeding territories during an intensive survey of the Peninsula (Atwood unpubl. data).

Fifteen pairs of cactus wrens were located from 1 March - 1 May 1993 in, or immediately adjacent to, the Rancho Palos Verdes Redevelopment Project Area (Fig. 3). With the exception of 2 pairs found on the slopes above Abalone Cove, 1 pair located near Wayfarer's Chapel, and 1 pair one the slopes above the Portuguese Bend Club, all of these pairs were located at or above the 400 foot elevation contour. During preliminary surveys conducted during February 1994, cactus wrens were found at 10 sites located in, or immediately adjacent to, the project area (Fig. 4). These results are almost certainly incomplete, and will be refined during additional field work to be conducted during spring 1994.

COASTAL SAGE SCRUB DISTRIBUTION

Fig. 5 provides a general overview of coastal sage scrub distribution in the general vicinity of the Rancho Palos Verdes Redevelopment Project Area. These preliminary results are provided as part of a larger project aimed at mapping the distribution of coastal sage scrub vegetation throughout the Palos Verdes Peninsula NCCP subregion (Atwood unpubl. data).

Field mapping of natural vegetation on the Palos Verdes Peninsula (including the Rancho Palos Verdes Redevelopment Project Area) included two major steps. First, the boundaries of vegetation polygons were delineated by M. Fugagli on plastic overlays affixed to 1"=1200' color aerial photographs, dated 8 January 1992, that were obtained from AirPhoto Services, Inc. (425 E. Columbine Ave., Santa Ana, CA 92707). Second, Fugagli field-inspected all vegetation units, either from nearby vantage points using binoculars, or by directly visiting the sites. During this ground-truthing phase, polygon boundaries were adjusted as appropriate, and visual estimates of the percent cover of the following plant species or categories were made for each polygon: (a) *Artemisia californica*, (b) *Eriogonum* spp. (including *E. fasciculatum* and *E. cinereum*), (c) *Salvia* spp. (including *S. leucophylla* and *S. mellifera*), (d) *Opuntia littoralis*, (e) *Rhus integrifolia*, (f) *Opuntia prolifera*, (g) *Encelia californica*, (h) *Elymus condensatus*, (i) *Baccharis pilularis*, (j) *Foeniculum vulgare*, (k) *Salsola Kali*, (l) miscellaneous ornamental shrubs, (m) disturbed grassland, (n) riparian, and (o) bare ground. Most ground-truthing of vegetation data was completed between September 1992 and May 1993.

It became apparent during the final process of digitizing these data that several areas of natural vegetation on the Palos Verdes Peninsula had been overlooked during field mapping efforts. Consequently, the analysis of vegetation distribution shown in Fig 5 is incomplete; continuing field work will result in collection of these data during spring 1994.

Various classification systems have been applied to coastal sage scrub, ranging from subassociations based on subjective descriptions to those defined on the basis of quantitative studies using complex ordination analyses (Munz 1969; Thorne 1976; Kirkpatrick and Hutchinson 1977; Westman 1981; DeSimone and Burk 1992; Jones and Stokes Associates, Inc. 1993). This study uses two different methods to describe areas of natural habitat within the Rancho Palos Verdes Redevelopment Project Area

First, vegetation polygons were classified as "Scrub" wherever the estimated total combined cover of plant species that typically occur as dominants in the coastal sage scrub community (*Artemisia californica*, *Eriogonum* spp., *Salvia* spp., *Opuntia* spp., *Encelia californica*, and *Rhus integrifolia*) was ≥ 30% (Fig. 5). Second, in order to identify coastal sage scrub subassociations relevant to the Palos Verdes Peninsula, we applied a cluster analysis based on nearest centroid sorting (PROC FASTCLUS, SAS Institute 1985) to the raw estimates of percent cover for each vegetation polygon. These results were used to define major subassociations of coastal sage scrub on the Palos Verdes Peninsula; these include (1) Lemonadeberry Scrub, dominated by *Rhus integrifolia*; (2) Sage-Lemonadeberry Scrub, dominated by *Salvia* spp. and *Rhus integrifolia*, (3) Cactus Scrub, dominated by *Opuntia littoralis*, *Artemisia californica*, and *Encelia californica*; and (4) Sagebrush Scrub, dominated by *Artemisia californica*. A dichotomous key was then produced and applied to the raw field data in order to assign each mapped polygon to one of these subassociations (Table 1).

TABLE 1. Key to coastal sage scrub subassociations and other vegetation categories used in classifying polygons of natural vegetation mapped on the Palos Verdes Peninsula (including the Rancho Palos Verdes Redevelopment Project Area). [1]

A	Dominated by riparian species such as Salix	not included in key
A'	Bare ground comprising ≥ 50% of total area	not included in key
A"	Dominated by grassland or coastal sage scrub	B
B	Coastal sage scrub species (Ac,Er,Sa,Op,Rh,En) comprising < 30% cover	Disturbed Grassland
B'	Coastal sage scrub species (Ac,Er,Sa,Op,Rh,En) comprising ≥ 30% cover	C
C	Percent cover of Rh ≥ total percent cover of Ac,Er,Sa,Op,En	Lemonadeberry Scrub
C'	Percent cover of Rh < total percent cover of Ac,Er,Sa,Op,En	D
D	Total percent cover of Sa,Rh ≥ total percent cover of Ac,Er,Op,En	Sage-Lemonadeberry Scrub
D'	Total percent cover of Sa,Rh < total percent cover of Ac,Er,Op,En	E
E	Percent cover of Op ≥ 25%	Cactus Scrub
E'	Percent cover of Op < 25%	Sagebrush Scrub

[1] Ac = *Artemisia californica*; Er = *Eriogonum* spp.; Sa = *Salvia* spp.; Op = *Opuntia* spp.; Rh = *Rhus integrifolia*; En = *Encelia californica*.

The approximate distribution of these major coastal sage scrub subassociations within the general vicinity of the Rancho Palos Verdes Redevelopment Project Area is shown in Fig. 6; these results will ultimately be presented in more finished form as part of Manomet Observatory's general vegetation mapping project on the Palos Verdes Peninsula. Within the study area, the majority of California gnatcatcher and cactus wren observations fall within polygons classified as Sagebrush Scrub or Cactus Scrub.

SUMMARY

The 1993 total of 16 pairs of California gnatcatchers represented approximately 31% of the total population of the species found on the Palos Verdes Peninsula during that year; 30% of the total number of cactus wren pairs found on the Peninsula during 1993 were located in, or immediately adjacent to, the Rancho Palos Verdes Redevelopment Project Area. The NCCP scientific review panel "considers habitat that supports a portion of a local population with 5 or more pairs of gnatcatchers or cactus wrens to be significant" as a potential core area for coastal sage scrub conservation planning. Clearly, the Rancho Palos Verdes Redevelopment Project Area, especially those portions located at elevations above 400 feet, meets this criteria and should be considered to have extreme value as a potential reserve for these species. Furthermore, given the location of the project area relative to other localities occupied by California gnatcatchers and cactus wrens on the Peninsula (Atwood, unpubl. data), it is my opinion that effective conservation planning for these species within the Palos Verdes NCCP subregion cannot be accomplished without preservation of most, or all, of the extant areas of coastal sage scrub in the Rancho Palos Verdes Redevelopment Project Area.

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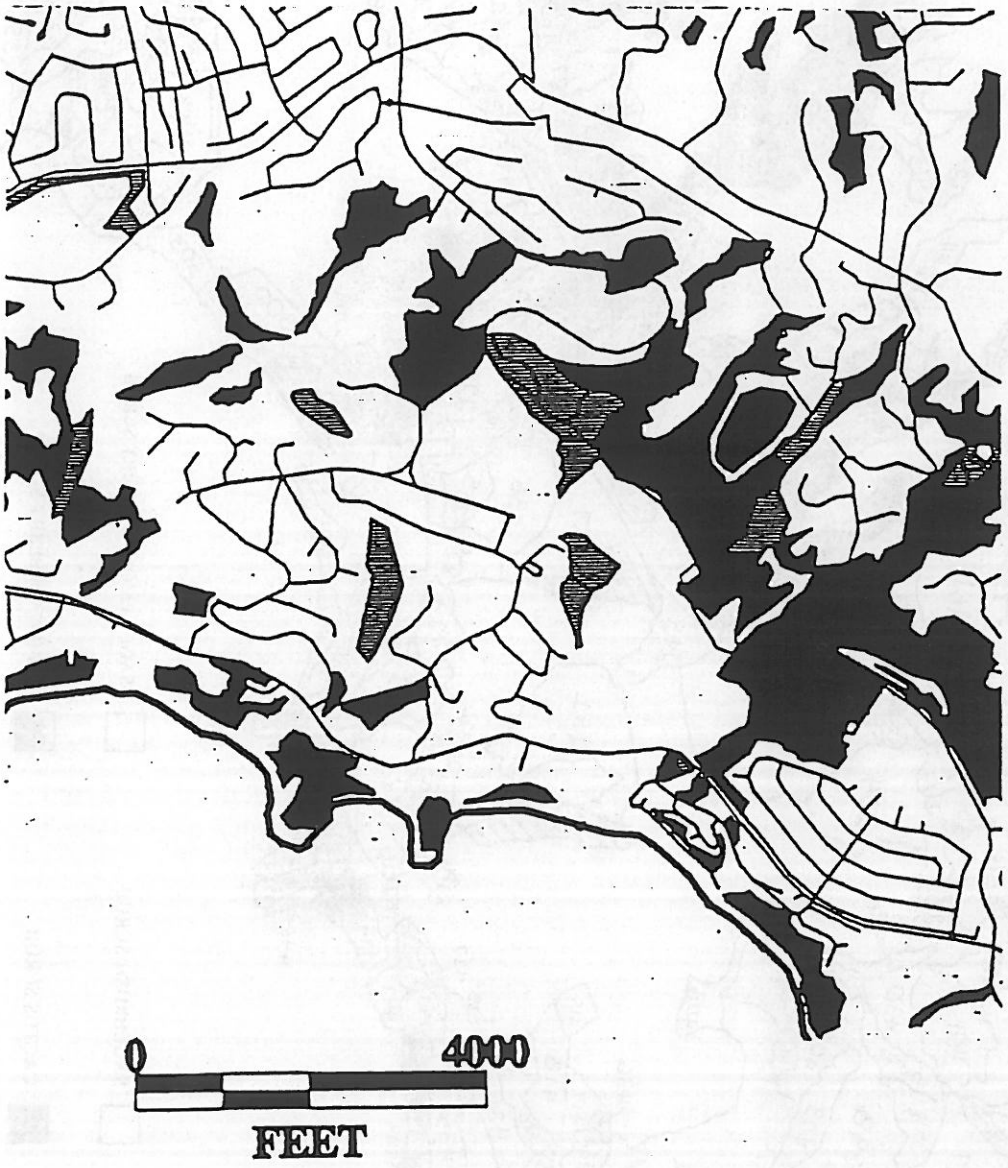

Fig. 5. Preliminary assessment of the distribution of coastal sage scrub vegetation in the general vicinity of the project area. Areas shown as solid black reflect mapped polygons where estimated total cover of the following coastal sage scrub dominant plant species was ≥ 30%: *Artemisia californica*, *Eriogonum* spp., *Salvia* spp., *Rhus integrifolia*, *Encelia californica*, *Opuntia* spp. Stipled polygons indicate areas that appear to be natural vegetation based on aerial photographs, but which were omitted from vegetation field surveys conducted during 1993.

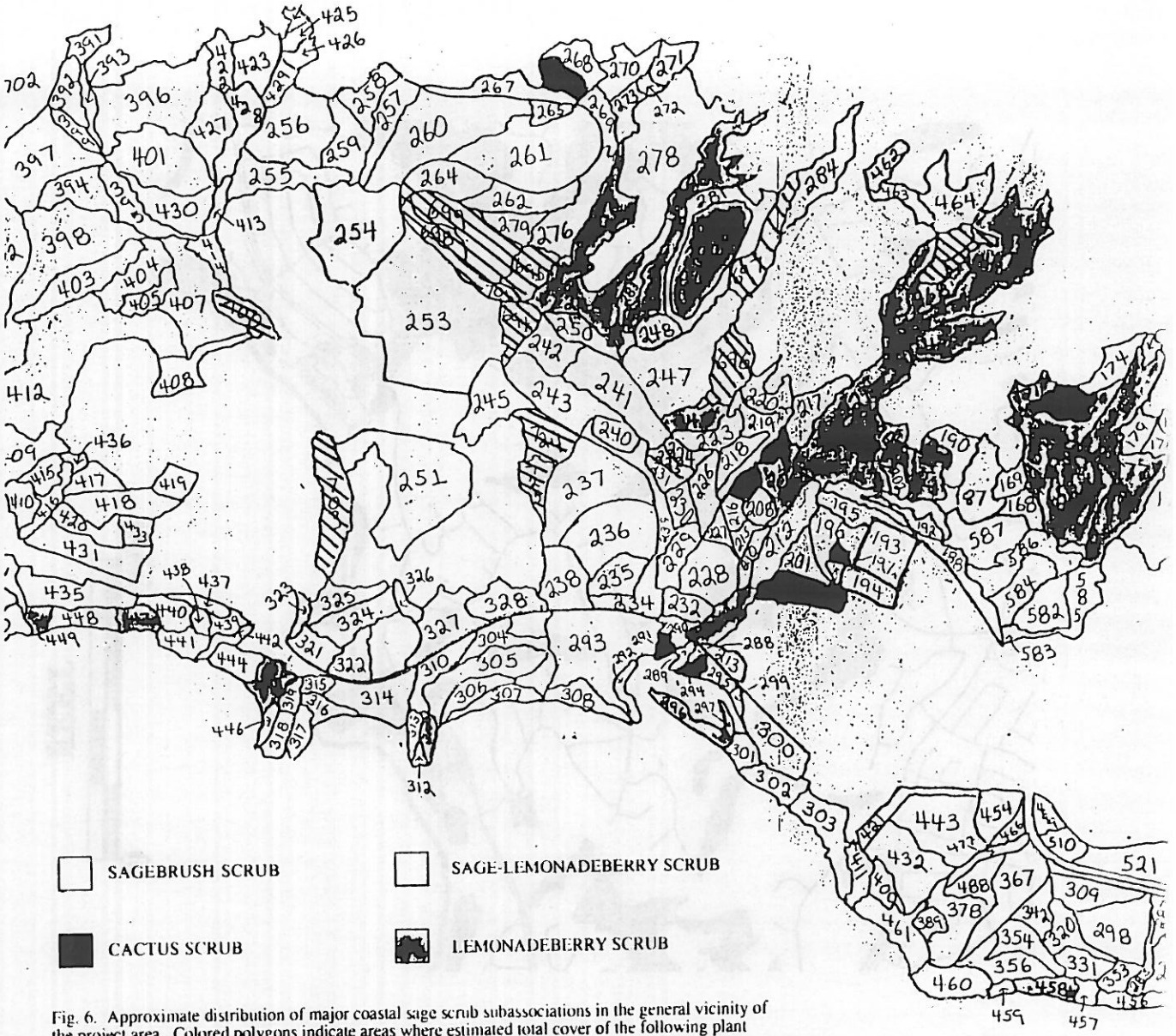

Fig. 6. Approximate distribution of major coastal sage scrub subassociations in the general vicinity of the project area. Colored polygons indicate areas where estimated total cover of the following plant species ≥ 30%: *Artemisia californica*, *Eriogonum* spp., *Salvia* spp., *Rhus integrifolia*, *Encelia californica*, *Opuntia* spp. Cross-hatched areas indicate polygons that appear to be natural vegetation based on aerial photographs, but which were omitted from vegetation field surveys conducted during 1993. Uncolored polygons indicate areas of natural vegetation supporting < 30% dominant coastal sage scrub plant species. See Fig. 5 for positioning of polygons relative to road locations.