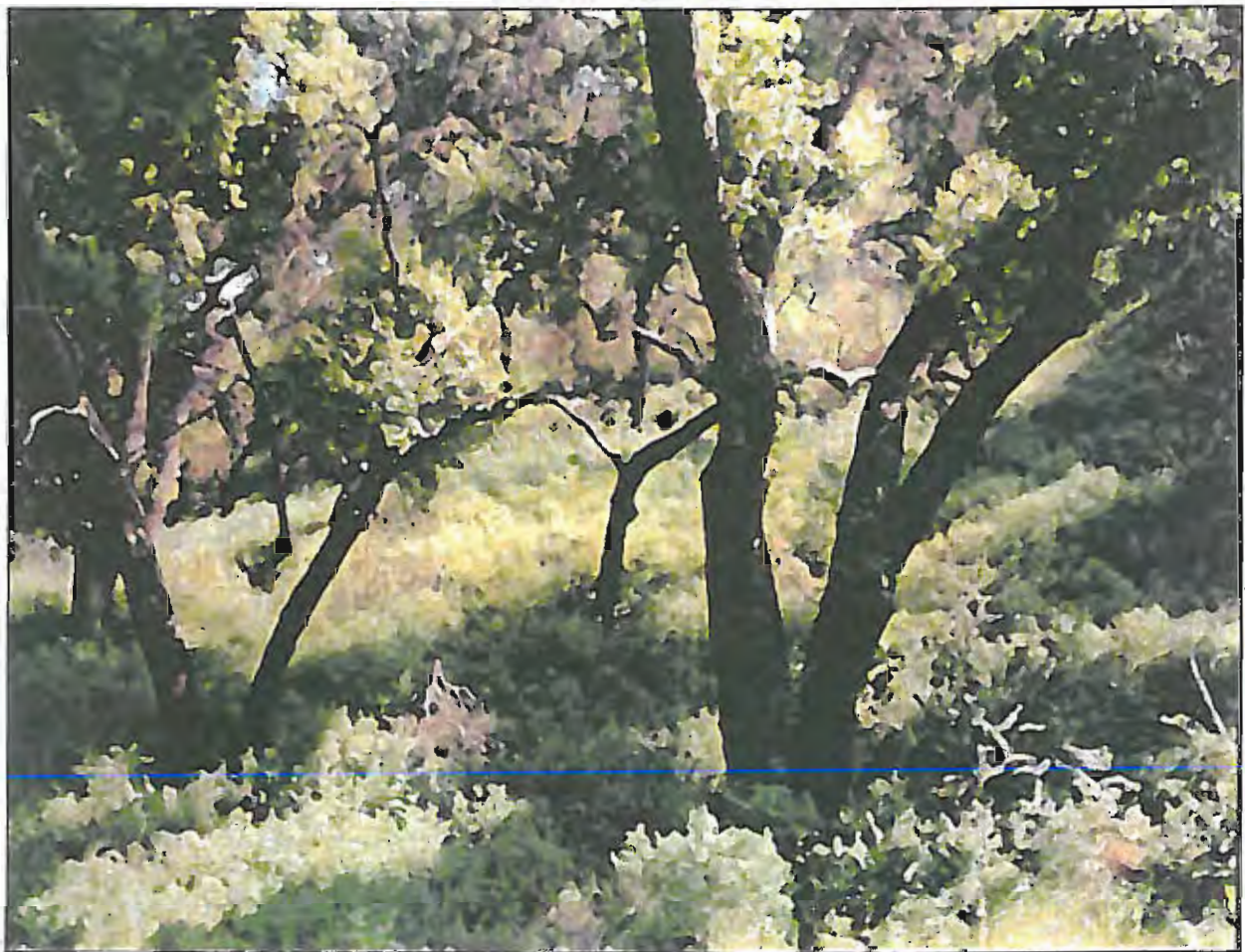


LAGUNA COAST WILDERNESS PARK

Resource Management Plan



September 1998

COUNTY OF ORANGE
PUBLIC FACILITIES AND RESOURCES DEPARTMENT
JOHN W. SIBLEY
Director

HARBORS, BEACHES AND PARKS
Tim Miller
Manager

Denton D. Turner
Landscape Architecture Design

Kathie Matsuyama, Scott Thomas
Project Managers

**LAGUNA COAST WILDERNESS PARK
RESOURCE MANAGEMENT PLAN**

SEPTEMBER 1998

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LIST OF ACRONYMS

ATL	Aufdenkamp Transmission Line
BP	before present
CDF	California Department of Forestry
CDFG	California Department of Fish & Game
CDPR	California Department Parks and Recreation
CEQA	California Environmental Quality Act
CGA	Coastal Greenbelt Authority
CNDDB	California Natural Diversity Data Base
CSS	coastal sage scrub
EIR/EIS	Environmental Impact Report and Environmental Impact Statement
EMA	County of Orange Environmental Management Agency
EPMP	Exotic Plant Management Plan
FEP	Fire Emergency Procedure
FESA	Federal Endangered Species Act
GIS	Geographic Information System
GDP	General Development Plan
GDPs	General Development Plans
HBP	County of Orange Harbors, Beaches and Parks
HERP	Habitat Enhancement & Restoration Plan
LBCWD	Laguna Beach County Water District
LBFD	Laguna Beach Fire Department
LCWP	Laguna Coast Wilderness Park
MPAH	County Master Plan of Arterial Highways
NCCP/HCP	Natural Community Conservation Plan and Habitat Conservation Plan
ND	Negative Declaration
OC	Orange County
OCFA	Orange County Fire Authority
PCH	Pacific Coast Highway
PFRD	County of Orange Public Facilities & Resources Department
RMP	Resource Management Plan
RMPs	Resource Management Plans
SCE	Southern California Edison Company
SJHTC	San Joaquin Hills Transportation Corridor
SR	State Route
TCA	Transportation Corridor Agencies
TIC	The Irvine Company
TNC	The Nature Conservancy
TNROC	The Nature Reserve of Orange County
UCI	University of California
USFWS	U. S. Fish and Wildlife Service



I. EXECUTIVE SUMMARY

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Laguna Coast Wilderness Park (LCWP) is an extremely important open space area within the County of Orange. The park provides 6,300 acres of pristine wilderness open space area that is rich in resource diversity. The park's resources are a primary focus for the County's Central and Coastal Subregion of the Natural Communities Conservation Plan/Habitat Conservation Plan (NCCP/HCP).

As required by the NCCP/HCP, programs for implementing NCCP/HCP policies will be defined in a Resource Management Plan (RMP) for each County park within the proposed habitat reserve system. The RMP elements will include policies for managing and monitoring the reserve system, research, habitat restoration and enhancement, fire management, public access and recreation, infrastructure, existing uses and interim management. The RMP will be submitted for approval to the California Department of Fish and Game and the U.S. Wildlife Service.

EXISTING CONDITIONS

Land within the park is currently owned by multiple entities. In an effort to ignore jurisdictional boundaries and consider the Laguna Coast open space as a whole, the Laguna Coast Wilderness Park General Development Plan (GDP) proposes a boundary, for planning purposes only, which includes land owned by the Irvine Company and various government agencies including the State of California, the City of Laguna Beach and the County of Orange. At the request of the City of Irvine, existing or future lands of the City of Irvine are not included within the planning boundary for the GDP or this RMP. Although Crystal Cove State Park has been included within the planning boundaries of the GDP, Crystal Cove is a distinct and separate entity.

The NCCP program proposes conservation of coastal sage scrub habitat as well as other valuable habitat types such as chaparral, grasslands, marsh, riparian, woodland, rock outcrops and cliff faces. Laguna Coast Wilderness Park contains large areas of coastal sage scrub, chaparral and annual grassland communities.

Three target organisms in the coastal sage scrub habitat (the California gnatcatcher, the cactus wren and the orange-throated whiptail lizard) were used as surrogates for the NCCP/HCP planning purposes. By providing protection for the habitat of these three species, sufficient coastal sage scrub would be protected to benefit 50 potential threatened or endangered species.

GOALS AND OBJECTIVES

Through a series of community "Taking Part" workshops, goals for park planning and management were developed as consensus items. With a mission of providing people with wilderness-type recreational and educational experiences while protecting, restoring and enhancing park natural resources, the consensus items (or goals) will direct future activities

for the park, the ultimate park design and strategies for park management. Resource management goals were also developed to further define the balance between public access and resource protection, enhancement and restoration.

PUBLIC ACCESS

The majority of the park's built structures and roads will be located at the edge of the park allowing the valuable resources of the park's wilderness areas to be protected and preserved. Recreation trails will be predominately restricted to existing trails and truck trails. Picnicking, interpretation, education and trail use are the anticipated uses by the general public. These uses will be restricted to fairly well defined areas with encroachment into heavily vegetated and sensitive resource areas prohibited. The RMP includes specific recommendations for general public access, pre-construction requirements, park improvement zone biological surveys, annual reports, trails, enforcement and emergency procedures.

PUBLIC OUTREACH AND EDUCATION

Public outreach and education of park visitors may be the most important element of the resource management program. The interpretive program will focus on the concept that the park is the core of a larger ecosystem that is critically dependent on maintaining an ecological balance within the park. The proposed interpretive program will communicate resource value and sensitivity through a comprehensive framework of docent-led tours and programs, park ranger talks, nature trails, presentations, multi-media materials, interpretive center exhibits and displays, hands-on experiences, signage and park resource take-home materials and information.

Academic outreach will be encouraged as well as volunteer programs including park docents, ranger reserves, Adopt-A-Park, TRAILS4ALL, and the stewardship program. A community outreach program will provide information to local residents about the implications of living in close proximity to a wilderness park. The local Laguna Beach arts community will be encouraged to become involved in park education and interpretation programs including multi-media special events in the park's interpretive center.

FIRE MANAGEMENT

Fires are a natural occurrence within the native plant communities of Laguna Coast Wilderness Park and play an important role in maintaining biodiversity within the Park's ecosystem. In October of 1993, a fire in the San Joaquin Hills burned approximately 14,000 acres of natural vegetation including coastal sage scrub, chaparral, oak and sycamore woodland and grassland habitat, including roughly 90% of the natural vegetation within Laguna Coast Wilderness Park. While it may take several more years to achieve pre-fire animal populations, there are signs that coastal sage scrub and other habitats have regrown to support most of the wildlife and various nesting birds that existed in the park before the fire.

The RMP describes existing and future fire management plans and provides recommendations for a comprehensive fire management program for the park.

HABITAT ENHANCEMENT AND RESTORATION PLAN

Laguna Coast Wilderness Park provides many opportunities for the restoration of currently degraded habitat areas dominated by annual grasses, mustard and artichoke thistle. The restoration of these degraded areas, particularly where they abut target species habitat, will improve the biodiversity within the park by increasing available habitat for target species, eliminating source populations of exotic species and create habitat linkages between otherwise fragmented stands of habitat. As a starting point, the LCWP RMP has adopted the Nature Conservancy's recommendations for habitat restoration and enhancement areas as described in *The Irvine Company Open Space Reserve Habitat Restoration Plan* for the Irvine Company lands within LCWP and adjacent open space. Restoration and enhancement activities in the park will reflect adaptive management practices over time.

EXOTIC PLANT CONTROL

Management of exotic plants in concert with restoration and fire management programs will be essential to maintain and enhance the biodiversity in the park. LCWP and surrounding open space areas are infested with exotic plants such as artichoke thistle, pampas grass, tree tobacco, castor bean, mustard, fennel, giant reed, annual grasses and eucalyptus. If left uncontrolled, exotic plant species will likely increase in abundance and prevent the gradual re-establishment of coastal sage scrub, riparian and native grassland plant communities. The RMP provides recommendations to identify and prioritize exotic plants of concern, evaluate alternate methods of control, assess current exotic plant control programs and develop methods of monitoring and evaluating exotic control activities.

INVASIVE AND PEST SPECIES CONTROL

In Laguna Coast Wilderness Park, vertebrate pest species such as the brown-headed cowbird, opossum, racoon and striped skunk have the potential to impact the park's ecosystem, especially by directly affecting one or more NCCP/HCP "target and identified species". In addition, two introduced amphibians, bullfrogs and African clawed frogs, could cause severe ecological damage at the Laguna Lakes. Argentine ants are a threat to native ant species and need to be controlled. The RMP recommends a management program to control invasive pest vertebrate species and insects.

MONITORING PROGRAM

As required by the NCCP/HCP, all resource management activities will be monitored to directly assess their effectiveness in meeting the overall goal of the Nature Reserve of Orange County to promote biodiversity, increase habitat for all target species and increase habitat value. Monitoring reports will be prepared for all resource management programs

including fire management, public access and recreation, habitat restoration, exotic plant control and pest vertebrate species control.

FUNDING

The cost of implementing the improvements proposed in the GDP is significant. A phasing plan has been developed to allocate total implementation costs of approximately \$3.9 million over time.

Funding for implementation of the actions and requirements contained in NCCP/HCP will come from a combination of participating NCCP landowners, local, state and federal agencies/programs and others, including non-profit foundations.



II. INTRODUCTION

II. INTRODUCTION

Laguna Coast Wilderness Park is an extremely important open space area within the County of Orange. The park provides 6,300 acres of pristine wilderness open space area that is rich in resource diversity. The park's resources are a primary focus for the County's Central and Coastal Subregion of the Natural Communities Conservation Plan/Habitat Conservation Plan (NCCP/HCP) program.

This Resource Management Plan outlines how the County of Orange Public Facilities and Resources (PFRD) proposes to manage the park in a manner consistent with the guidelines of the NCCP/HCP.

PROJECT LOCATION

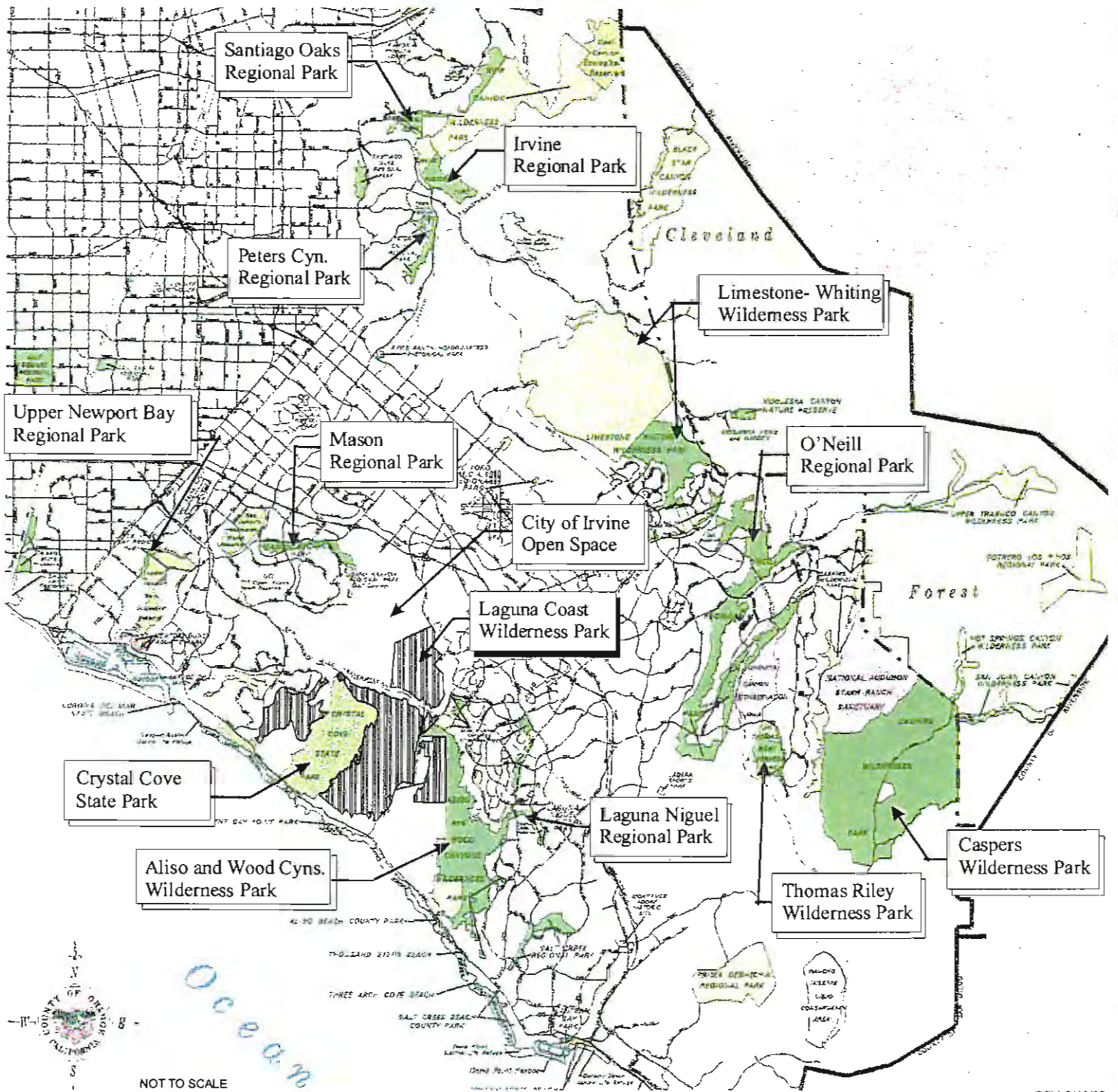
Laguna Coast Wilderness Park is located along the central coast of Orange County and is bounded by the San Diego Freeway and the City of Irvine in the north, the Cities of Irvine and Newport Beach to the west, the Pacific Ocean to the south, and Leisure World to the east. Edges along the boundary of the park consist of existing and proposed residential development.

THE NATURAL COMMUNITY CONSERVATION PLANNING ACT

The Natural Communities Conservation Planning program (NCCP) is an innovative State of California effort to protect and manage habitat supporting a broad range of plant and animal populations while allowing compatible land use and appropriate development. Enacted into law by the California Legislature in 1991, the NCCP Act is possible because of amendments to the Federal Endangered Species Act. It is intended the NCCP program will result in long term land use plans and long term management programs that will protect and enhance habitats and their component species.

The southern California Coastal Sage Scrub (CSS) NCCP Program is the first effort to be undertaken pursuant to the NCCP Act. It is a pilot project and may serve as a model for other efforts elsewhere in the State. The Southern California Coastal Sage Scrub NCCP is made up of eleven subregions covering 6,000 square miles in a five county area. The Central and Coastal Subregion is one of the eleven subregions and encompasses 208,000 acres of developed, agricultural and undeveloped lands, an area encompassing about two-fifths of the County of Orange. Within the Central and Coastal Subregion are 104,000 acres of natural biotic communities, including 34,392 acres of Coastal Sage Scrub.

Eighteen County of Orange regional parks, including Laguna Coast Wilderness Park, are enrolled in the Central and Coastal Subregion NCCP Program.



LAGUNA COAST WILDERNESS PARK
 County of Orange
 Public Facilities & Resources Department
 Harbors, Beaches and Parks : Landscape Architecture

ADJACENT PARKS
 AND OPEN SPACE AREAS
 Exhibit 1A

THE HABITAT CONSERVATION PLAN

An important requirement of NCCP is the preparation of a Habitat Conservation Plan (HCP). Specific project purposes for the HCP are:

- Planning for the protection of multiple-species and multiple habitats within the coastal sage scrub habitat mosaic by creating a habitat reserve system that contains substantial coastal sage scrub, chaparral, grassland, riparian, oak woodland, cliff and rock, forest and other habitats;
- Developing a conservation program that shifts away from the current focus on the project-by-project, single species protection to conservation and management of many species and multiple habitats on a subregional level;
- Allowing social and economic uses within the subregion that are compatible with the protection of identified species and habitats;
- Protecting the federally-listed coastal California gnatcatcher in a manner consistent with Section 10(a) of the Federal Endangered Species Act and the Special 4(d) Rule for the gnatcatcher while providing for future incidental take of the species.

The NCCP/HCP for the Central and Coastal Subregion was prepared by the County of Orange and dedicated on July 17, 1996. NCCP/HCP guidelines included the selection of three "target" organisms used as surrogates for planning purposes in the Coastal Sage Scrub habitat, home to over 50 potentially threatened or endangered species. The organisms selected were:

- California gnatcatcher (*Poliophtila californica californica*)
- Cactus wren (*Campylorhynchus brunneicapillus*)
- Orange-throated whiptail lizard (*Cnemidophorus hyperythrus beldingi*)



California gnatcatcher

Conservation planning for these three NCCP species was intended to provide the basis for maintaining the viability of the coastal sage scrub community as a whole. By providing long-term protection of the habitat required by the three target species, sufficient coastal sage scrub habitat would be protected to benefit a much broader range of coastal sage scrub-related species. This comprehensive habitat management program is called "adaptive management." It means the management actions within the reserve will be monitored closely and modified (adapted) over time to respond to new scientific information, changing conditions and habitat needs.

THE NATURE RESERVE OF ORANGE COUNTY

One of the key components of NCCP/HCP is the creation of the 38,738 acre Nature Reserve of Orange County. The Reserve is proposed to protect more than 18,800 acres of coastal sage scrub. CSS is a naturally fragmented habitat interspersed with a mosaic of non-CSS vegetation communities including chaparral, grasslands and oak woodlands. Inclusion of significant portions of these non-CSS habitats and their resident species within the proposed permanent reserve system will increase its biodiversity value and result in a multiple-species, multiple habitat reserve.

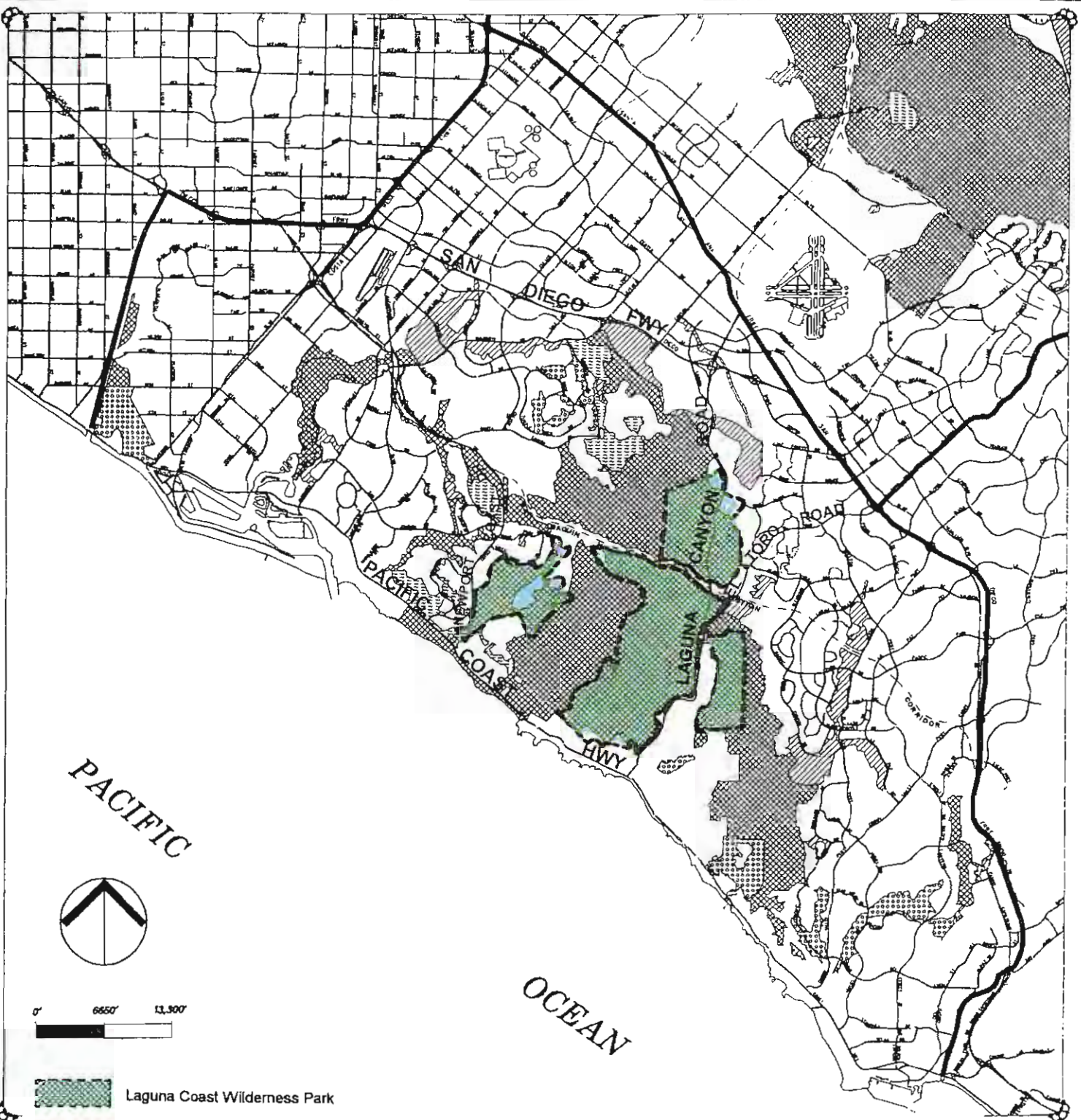
Therefore, in addition to 18,000 acres of coastal sage scrub, the reserve will include: 7,300 acres of chaparral; 6,100 acres of grassland; 1,800 acres of riparian; 950 acres of woodland; 200 acres of forest habitat; and significant portions of six other habitats which currently exist in the subregion.

The reserve will be owned and managed by public agencies and administered by a Non-Profit Management Corporation consisting of representatives of each of the following:

- Each local Government owning land in the reserve
- Southern California Water District
- Irvine Ranch Water District
- Southern California Edison
- Metropolitan Water District
- Transportation Corridor Agency
- California Department of Parks and Recreation
- California Department of Fish and Game
- United States Fish and Wildlife Service
- Regents of the University of California
- Chandis-Sherman (until the temporary Pacific pocket mouse preserve is dissolved)
- The Irvine Company (until TIC land is transferred to a public agency and formally included in the Reserve)
- Each non-profit entity owning land within the Reserve
- Three public representatives appointed by the Board of Directors
- Non-voting ex-officio member representing the California Department of Forestry
- Non-voting ex-officio member representing the Orange County Fire Authority

In recognition of the unique responsibilities of the Coastal Greenbelt Authority with respect to the Laguna Coast Wilderness Park planning and management, an additional non-voting member of the Board of Directors of the NCCP Non-Profit Corporation has been designated by the Coastal Greenbelt Authority.

The Non-Profit Corporation will coordinate activities within the reserve system, receive and disburse funds to reserve owners/managers, hire staff and biologists to conduct adaptive management activities and prepare annual reports for public review.



RESERVE CLASSIFICATIONS

- Reserve
- Existing Use
- Policy Plan Area
- Special Linkage
- Non-Reserve Open Space
- Central Coastal Boundary



PUBLIC FACILITIES and RESOURCES DEPT
 Geomatics / Land Information Systems Division
 GIS Applications and Mapping Services Unit



LAGUNA COAST WILDERNESS PARK
 County of Orange
 Public Facilities & Resources Department
 Harbors, Beaches and Parks • Landscape Architecture

LOCATION MAP
 (NCCP & LCWP)
 Exhibit 1B

THE RESOURCE MANAGEMENT PLAN

As required by the NCCP/HCP, programs for implementing NCCP/HCP policies will be defined in a Resource Management Plan for each County park within the proposed habitat reserve system. The RMP elements will include policies for managing and monitoring the Reserve system, research, habitat restoration and enhancement, fire management, public access and recreation, infrastructure, existing uses and interim management. The RMP will be submitted for approval to the California Department of Fish and Game and the U.S. Fish and Wildlife Service.

RELATIONSHIP TO OTHER PLANS

In 1993, PFRD retained a consultant team of RJM Design Group, Inc. and the Office of Lawrence Halprin in association with David Bramlet and LSA and Associates, Inc. to prepare a General Development Plan (GDP) and Existing Conditions Report for the Laguna Coast Wilderness Park. A draft Existing Conditions Report and a GDP for Laguna Coast Wilderness Park have been prepared.

The purpose of the GDP is to document the proposed development, restoration and preservation activities and facilities within the boundaries of the park. The GDP provides guidelines for all future design and construction within the park. The existing conditions report includes information on the park's geology, topography, hydrology, paleontology, biology and archaeology as well as visual and fire conditions, circulation and existing facilities.

In an effort to ignore jurisdictional boundaries and consider the Laguna Coast open space as a whole, the GDP proposes a boundary, for planning purposes only, which includes land owned by the Irvine Company and various government agencies including the State of California, the City of Laguna Beach and the County of Orange. At the request of the City of Irvine, existing or future lands of the City of Irvine are not included within the planning boundary for the GDP.

Although for planning purposes Crystal Cove State Park has been included within the boundaries of the GDP, Crystal Cove is a distinct and separate entity. The NCCP/HCP Implementation Agreement indicates the Crystal Cove General Plan of 1982 was determined to be compatible with the NCCP/HCP.

In October of 1992, the County of Orange prepared an Interim Operations Plan (see Appendix A) for Laguna Coast Wilderness Park to guide the management of the park for public safety, resource protection, environmental education and passive recreation.

In March of 1994, a study of the Laguna Canyon watershed, *Laguna Lakes Enhancement and Management Plan*, was completed. The study described restoration and enhancement of the Laguna Lakes through improvements to water quality and by enhancing aquatic and riparian habitats.



III. EXISTING CONDITIONS

III. EXISTING CONDITIONS

A. LAND USE

HISTORY

Several groups of native Americans were living in the coastal and inland areas of southern California as early as 5500 B.C. A long tradition of hunting and trapping along with gathering plant food and shellfish for subsistence continued until the Spanish explorers arrived in the 18th century.

In 1776, lands that are now part of the Laguna Coast Wilderness Park were under the control of the Mission San Juan Capistrano and were used for agricultural uses, especially cattle grazing. The park lands were only a small portion of the several hundred square miles of grasslands used by the Mission. The Mission priests baptized the local Indians and supplanted the native Californians' traditional lifestyle of hunting and gathering with a focus on farming the land.

After 1841, Mexico took possession of the lands controlled by the missions and granted land parcels to Mexican citizens. Jose Sepulveda petitioned for a grant near the coast in 1835. Rancho San Joaquin was granted to Sepulveda in 1837 and included the land between Newport Bay and Laguna Canyon. Following a series of economic reversals, including the terrible drought of 1862-64, Sepulveda sold the property for \$18,000 in late 1864 to a San Francisco merchant, James Irvine, and his partners, Llewellyn Bixby and Benjamin and Thomas Flint. Irvine held a 50% interest, while Bixby and the Flints shared the remaining half. In 1876, Irvine bought out his partners and continued agricultural use of the property.

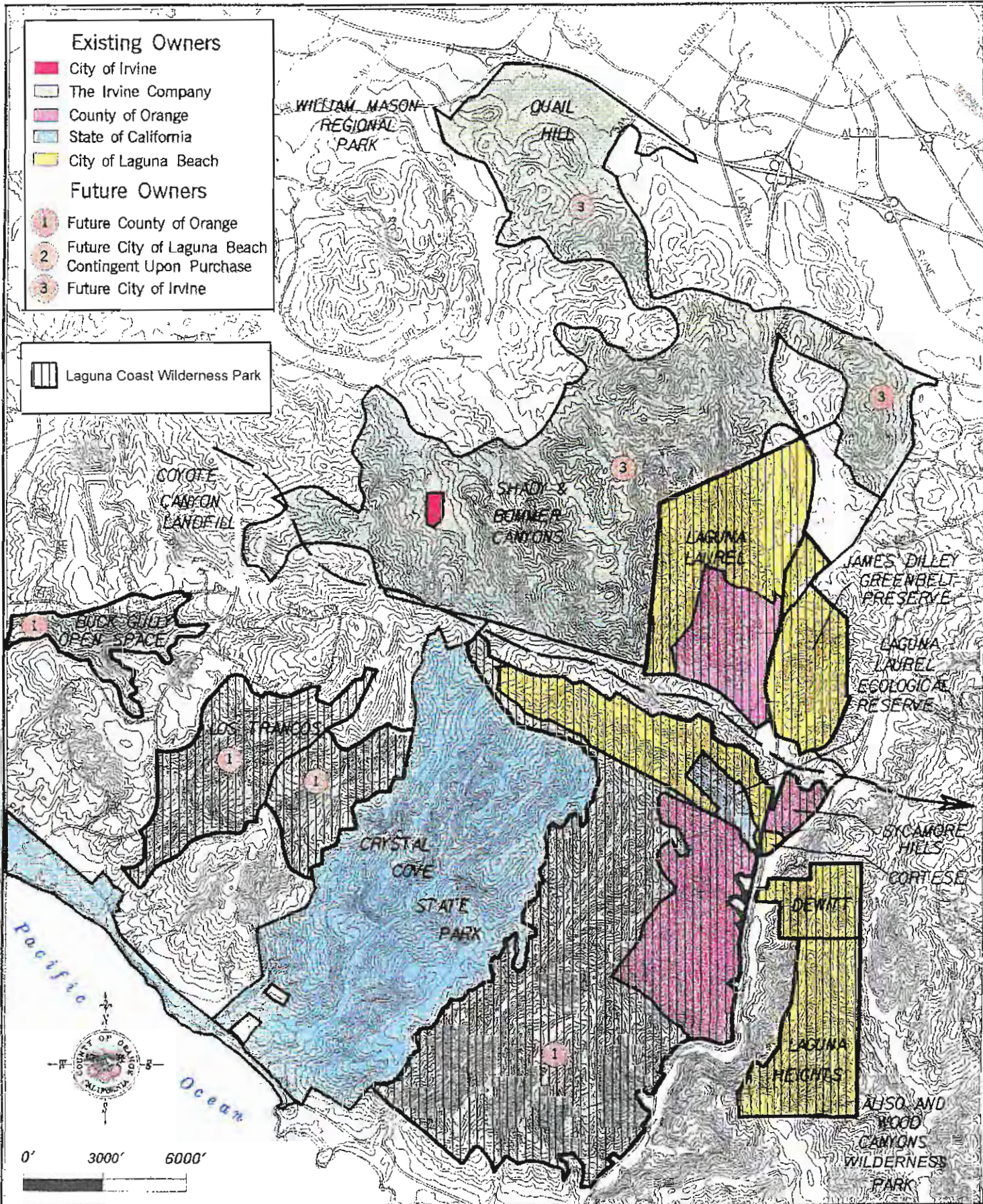
In 1980 the Irvine Company donated 500 acres of Moro Ridge to the State of California after the State acquired 1,898 acres for Crystal Cove State Park. The Irvine Company irrevocably offered the 2,666 acre former Irvine Coast Wilderness Park to the County in 1987. The Irvine Company also worked with the City of Laguna Beach in the purchase of the Laguna Laurel lands after the voters of Laguna Beach approved bonds for this purchase in 1990. This purchase agreement was the beginning of a coordinated effort involving public agencies, private organizations and individuals to establish the Laguna Coast Wilderness Park.

LAND OWNERSHIP

The park's 6,300 acres are currently owned by multiple entities (see Exhibit 2A). In an effort to ignore jurisdictional boundaries and consider the Laguna Coast open space as a whole, the Laguna Coast Wilderness Park General Development Plan proposes a boundary, for planning purposes only, which includes land owned by the Irvine Company and various government agencies including the State of California, the City of Laguna Beach and the County of Orange. At the request of the City of Irvine, existing or future lands of the City of Irvine are not included within the planning boundary for the GDP or this RMP.

- Existing Owners**
- City of Irvine
 - The Irvine Company
 - County of Orange
 - State of California
 - City of Laguna Beach
- Future Owners**
- 1 Future County of Orange
 - 2 Future City of Laguna Beach
 - 3 Future City of Irvine

Laguna Coast Wilderness Park



LAGUNA COAST WILDERNESS PARK
 County of Orange
 Public Facilities & Resources Department
 Harbors, Beaches and Parks

LAND OWNERSHIP
 Exhibit 2A

1. City of Laguna Beach

In 1990, City of Laguna Beach residents voted to purchase \$20 million dollars in bonds to assist with the acquisition of the Laguna Laurel Planned Community area. As a result, the City of Laguna Beach and the Irvine Company entered into an agreement in 1991 which allowed the City of Laguna Beach to purchase up to 2,150 acres in progressive annual purchase options totally \$78 million dollars over five years.

Through the unprecedented Laguna Laurel five part agreement, Options 1-4 were purchased for \$45 million from the Irvine Company with funding from the City of Laguna Beach, the State of California, the County of Orange and private donations raised by the Laguna Canyon Foundation. However, the payment of \$33 million for the 5th and final parcel was not made. Therefore, the option agreement with the Irvine Company expired on June 30, 1995.

Multi-party discussions concerning Parcel 5 led to an interim agreement in October, 1996. The agreement acknowledges the Irvine Company has no immediate plans to develop the land. It recognizes limited potential future development and adds environmental protections for the area. A number of volunteer organizations continue to seek a means to include in the park the two remaining residential developable parcels within Laguna Canyon.

2. State of California

The State of California owns an 82 acre ecological preserve within the park in Laurel Canyon. Although for planning purposes Crystal Cove State Park has been included within the boundaries of the GDP, Crystal Cove is a distinct and separate entity. The Crystal Cove General Plan of 1982 has been determined to be compatible with the NCCP/HCP.

3. The Irvine Company

For various dedication rights in the Irvine Coast Planned Community, The Irvine Company will dedicate portions of the Park to the County. These lands are included in the area covered by this Resource Management Plan. In addition, within the Irvine Conservation Open Space area, portions of the park currently owned by The Irvine Company will be dedicated to the City of Irvine for various development rights in the Irvine Spectrum area. The land known as The Irvine Company Open Space Reserve is to be dedicated to the City of Irvine as the Irvine spectrum area is developed. The Irvine Open Space Southern Reserve is currently managed by the Nature Conservancy.

4. County of Orange

Acquisition timeline for land ownership includes:

1960s

- Laguna Beach bookstore owner and open space advocate, Jim Dilley, advanced an Orange County open space and natural resource protection movement by founding the Laguna Greenbelt, Inc. Today, the late Jim Dilley is widely recognized as the "Father of the Laguna Greenbelt." For more than 30 years, on-going grassroots

efforts to protect and preserve coastal wilderness in the San Joaquin Hills have successfully advanced "Dilley's Dream." Shared by citizens throughout Southern California, Dilley's Dream has contributed to the formation of an exemplary system of public parks and open space reserves, the center of which is the Laguna Coast Wilderness Park.

1972

- The County of Orange Board of Supervisors approved the concept of a Laguna Greenbelt in the San Joaquin Hills.

1978

- The Department of the Interior determined the natural resources of the Laguna Greenbelt qualified the area for National Park status. In 1980, a bill to create an Orange Coast National Park passed only one house of Congress. At about the same time, the State of California bought 2,600 acres within the proposed park boundaries to create Crystal Cove State Park.

1984

- The Laguna Laurel Planned Community of 3,200 homes was approved on privately owned land in the center of the greenbelt.

1988

- 2066 acres irrevocably offered for dedication to the County by The Irvine Company.

1989

- Public outrage at the proposed residential development in the greenbelt culminated in 8,000 people marching along Laguna Canyon Road to demonstrate their support for public acquisition of the property.

1990

- 605 acres of the 1988 offer were accepted.
- Laguna Beach voters approved Proposition H providing \$20 million in bonds toward purchase of the Laguna Laurel lands. The tax increase was approved by nearly 80%, the highest vote for a bond measure in California since 1956.

1991

- 68 acres in Sycamore Hills were purchased by the County.
- 700 acres, including Los Trancos and Buck Gully were irrevocably offered for dedication to the County by The Irvine Company.
- City of Laguna Beach and The Irvine Company entered into an agreement to purchase the Laguna Laurel Planned Community area.
- The County and the City of Laguna Beach entered into a cooperative agreement which authorized the County to pay the City \$10 million (\$2.5 million per year for 4 years) to help purchase this property and combine City and County lands to form a new regional park.

1992

- County leased City acreage for inclusion in the park.

1993

- On April 10, 1993, Laguna Coast Wilderness Park was officially dedicated to the public with an inspiring ceremony in Little Sycamore Canyon.

1998

- As of June, 1998 two parcels of land within Laguna Canyon next to Laguna Coast Wilderness Park were still slated for residential development. Both parcels are owned by The Irvine Company. The Laguna Laurel parcel of approximately 162 acres in an unincorporated area has an approved development plan for 1,514 homes. The Laguna Laurel Stewardship Plan, February, 1993, identified this parcel for potential creation of coastal sage scrub and wetland/riparian habitat. The balance of the Laguna Laurel development property was purchased for parkland by the City of Laguna Beach, the County of Orange and the State of California. The second parcel within the City of Irvine jurisdiction has entitlement rights for 325 to 750 residential units.

Representatives from: the City of Laguna Beach; Laguna Canyon Foundation; Laguna Greenbelt, Inc.; Leisure World of Laguna Hills; the County of Orange and The Irvine Company issued a joint statement of concerns about the remaining land within Laguna Canyon still proposed for development. The five major provisions of the October, 1996 joint statement are:

1. The Irvine Company will not at this time exercise its rights under the 1990 Laguna Laurel agreement to immediately process plans for development on the last parcel not yet acquired for public ownership.
2. The Irvine Company will notify and will meet with the parties to this agreement prior to advancing its plans for any proposed development in the future.
3. Any development on this parcel will preclude any direct or through connection from Santa Maria Avenue to Laguna Canyon Road.
4. Water run-off from any new development will not be directed into the watershed of Laguna Canyon and Laguna Lakes unless agreed to by the parties important as to the protection of the lakes.
5. The parties agree to continue working together to secure funds for additional open space purchases.

FUTURE PARKLAND

In addition to the existing land ownership described above, additional lands will be added to the Park through future dedications and lease arrangements (see Exhibit 2B).

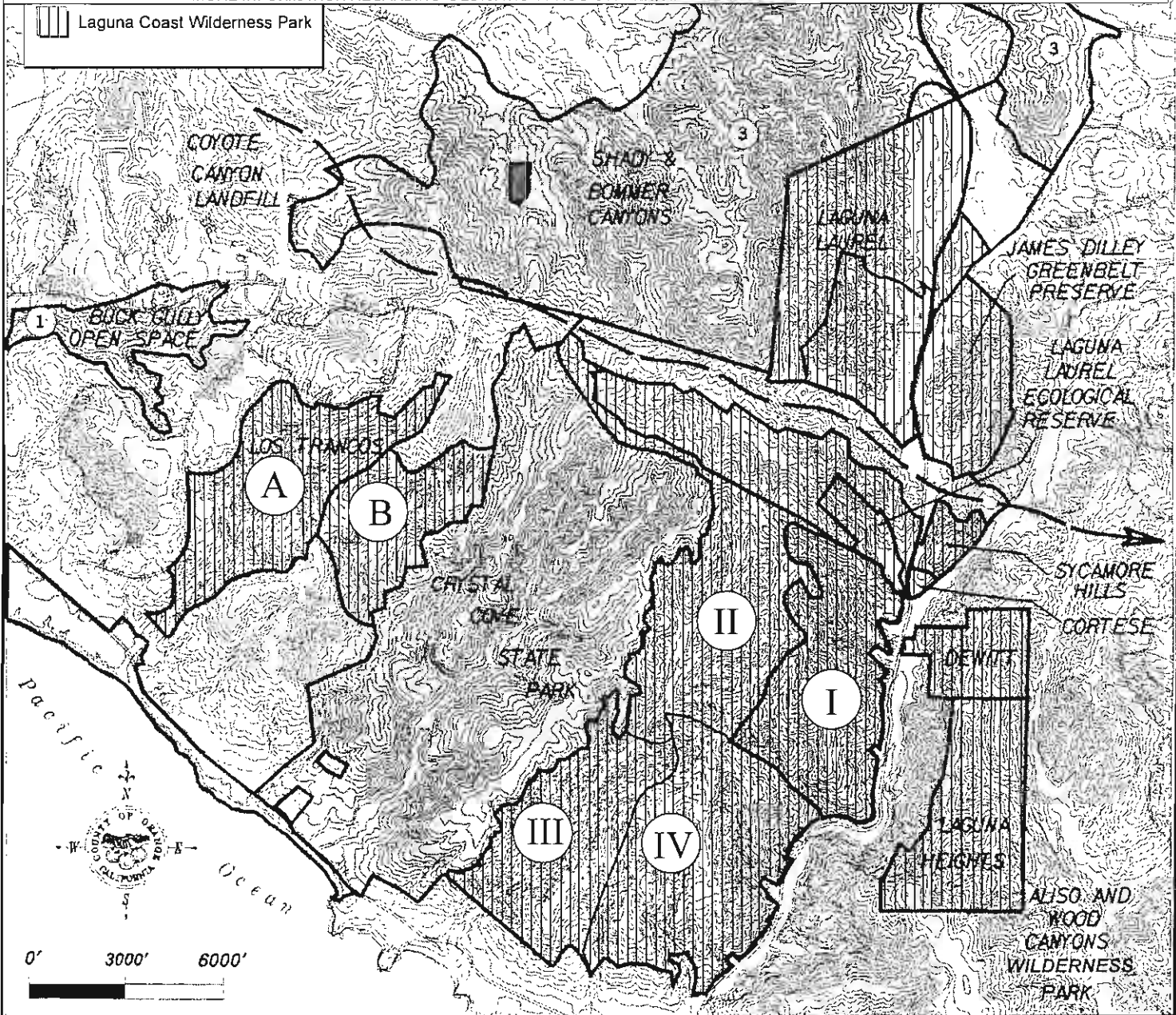
LEGEND-- THE IRVINE COMPANY PHASED DEDICATION AREAS— NEWPORT COAST LOCAL COASTAL PLAN

- ① **WILDERNESS DEDICATION AREA—MANAGEMENT UNIT I (+/- 605 acres):** Obtained by the County of Orange following issuance of the first grading permit for the Newport Coast Development.
- ② **WILDERNESS DEDICATION AREA—MANAGEMENT UNIT II (+/- 731 acres):** May be accepted by the County 90 days following issuance of building permits for a cumulative total of 1,000 primary residential dwelling units.
- ③ **WILDERNESS DEDICATION AREA—MANAGEMENT UNIT III (+/- 610 acres):** May be accepted by the County 90 days following issuance of building permits for a cumulative total of 2,000 primary residential dwelling units.
- ④ **WILDERNESS DEDICATION AREA—MANAGEMENT UNIT IV (+/- 720 acres):** May be accepted by the County 90 days following issuance of building permits for: (A) a cumulative total of 1,500 overnight/resort accommodations, or (B) a cumulative total of 80% of the 2.66 million square feet of development allowed in PA 13, whichever occurs first.

Note: Per the Newport Coast Irrevocable Offer of Dedication, Wilderness Dedication Areas, Management Units II, III, & IV may be accepted in their entirety on November 10, 2003, if one or more of the preceding triggers has not already occurred.

- Ⓐ **LOS TRANCOS CANYON -- PLANNING AREA 12A (+/- 606 acres)--** Irrevocably offered to County and may be accepted at any time.
- Ⓑ **MUDDY CANYON -- PLANNING AREA 12E (+/- 274 acres)--** Irrevocably offered to County and may be accepted at any time.

SOURCE: NEWPORT COAST LOCAL COASTAL PLAN (LCP). BOUNDARIES AND ACREAGE FIGURES ARE APPROXIMATE. SEE LCP FOR MORE INFORMATION REGARDING DEDICATION PROGRAM REQUIREMENTS AND PROCEDURES.



LAGUNA COAST WILDERNESS PARK

County of Orange
Public Facilities & Resources Department
Harbors, Beaches and Parks

THE IRVINE COMPANY
PHASED DEDICATION AREAS
Exhibit 2B

JURISDICTION

On June 25, 1991, the City of Laguna Beach and the County of Orange entered into a cooperative agreement establishing a new regional park and a cooperative management authority--The Coastal Greenbelt Authority. As a result of this agreement, the Laguna Coast Wilderness Park is currently managed under the Coastal Greenbelt Authority guidelines, an Interim Operations Plan developed by the County, and The Irvine Company Open Space Reserve Stewardship Plan developed by the Nature Conservancy.

The Coastal Greenbelt Authority includes four voting and two ex-officio members:

- County official
- County public member
- City of Laguna Beach official
- Representative elected by Laguna Beach civic and environmental groups
- California Fish and Game Department, ex-officio
- City of Irvine, ex-officio

The Coastal Greenbelt Authority is responsible for the following functions:

- Producing a master plan for facilities and resource management for the park which will be in accord with the Laguna Laurel Option Agreement.
- Monitoring park operations to insure consistency with the adopted facilities and management plan.
- Fostering volunteer assistance for activities within the regional park.
- Assisting in obtaining financial resources through grants or donations for future acquisition of property, facilities and operations of the regional park.
- Recommending to the Board of Supervisors and the Laguna Beach City Council the ownership interests and parcels to be added to the park.

UTILITIES

1. Water/Wastewater

Two agencies, the Irvine Ranch Water District (IRWD) and the Laguna Beach County Water District (LBCWD), are responsible for providing water distribution and wastewater collection services to any future development in the project areas.

Currently, IRWD has a reclaimed water reservoir (Zone B Spectrum) and pipeline located south of I-405 and east of Laguna Canyon Road, and an above-ground pipeline south of I-405 running from Sand Canyon Reservoir to the I-405 and then paralleling

the I-405 to Laguna Canyon Road. If Option Parcel 5 is developed, IRWD will likely require additional facilities. It is recommended these facilities not be located within LCWP.

IRWD receives domestic water from the Aufdenkamp Transmission Line (ATL) at the intersection of Old Laguna Canyon Road and Route 133. LBCWD owns and operates the ATL that parallels the highway within an easement west of the highway. Currently, LBCWD has the capacity to serve the west side of LCR from the Festival grounds to El Toro Road. Service beyond that point will have to be arranged through an agreement between IRWD and LBCWD.

Additionally, the City of Laguna Beach operates a sewer line east of the Laguna Canyon Road. Restroom facilities at Big Bend and Laurel Canyon Staging Area should be connected to the City of Laguna Beach sewer system.

2. Gas

The Southern California Gas Company currently has no facilities in Laguna Canyon Road, but plans to install a gas main parallel to the road if future demand for service is established.

3. Telephone

Two companies, Pacific Bell and General Telephone, provide phone service to the area from I-405 south to the first ridgeline of the San Joaquin Hills. Current General Telephone facilities in the area include a telemeter, a coin phone and traffic light at the intersection of Laguna Canyon Road and El Toro Road.

4. Electricity

Southern California Edison (SCE) supplies electrical service to the project area. SCE also operates three overhead transmission lines in the area including the lines over the Laguna Lakes. A 12kV distribution line is located east of and parallel to Laguna Canyon Road.

5. Solid Waste

The Bee Canyon Landfill and the Prima Deshecha Landfill serve this area. The Bee Canyon Landfill is located at the end of Sand Canyon Avenue in Irvine and is open to the general public. The Prima Deshecha Landfill is located east of I-405 and south of Ortega Highway in San Juan Capistrano.

CIRCULATION

Proposed transportation improvements that will effect the Laguna Coast Wilderness Park are described below. These include improvements to major transportation routes and projected road projects included on the County's Master Plan of Arterial Highways.

1. I-5/405 Confluence--Recently completed freeway widening from the confluence to El

Toro Road is expected to reduce daily commuter traffic on Laguna Canyon Road.

2. I-5 HOV Lanes--Proposed HOV lanes on I-5 between El Toro Road and Pacific Coast Highway are projected for 1997 completion.
3. San Joaquin Hills Transportation Corridor (SJHTC)--The six lane toll road connects the Corona Del Mar Freeway (I-73) in Costa Mesa near the John Wayne Airport with the I-5 near San Juan Capistrano. The Corridor is expected to reduce some of the current commuter traffic on Laguna Canyon Road while at the same time increasing local traffic for drivers who are accessing the SJHTC. These changes together mean little expected change on the volume of traffic on Laguna Canyon Road.
4. Eastern Transportation Corridor--This toll road is planned to begin at Route 91 and terminate at the I-5 interchange with Route 133.
5. Moulton Parkway Smart Street--Moulton Parkway, called Irvine Center Drive in Irvine, is projected for expansion to a six lane road. This is the first north/south route east of Laguna Canyon Road, excluding San Joaquin Hills Transportation Corridor.
6. Lake Forest Drive--The City of Irvine is planning to extend Lake Forest Drive from Moulton Parkway to Laguna Canyon Road. This road would be a four lane primary highway. Construction is projected to begin after the year 2000. The County and the City of Irvine anticipate, at some time in the future, the need to further extend Lake Forest Drive westward from Laguna Canyon Road to an area near the proposed Sand Canyon Road.
7. Bake Parkway--Bake Parkway may also be extended to Laguna Canyon Road. Construction is anticipated to occur in the next 20 years.
8. Santa Maria Avenue--The extension of Santa Maria Avenue is designated on the County Master Plan of Arterial Highways (MPAH) as a secondary highway that would connect Laguna Canyon Road and Moulton Parkway. The need for this extension may diminish if none of the planned development occurs on the Laguna Laurel property.
9. Aliso Creek Road--The County MPAH indicates that Aliso Creek Road would extend from El Toro Road to Laguna Canyon Road. This roadway extension would occur on property owned by the City of Laguna Beach. The City does not support this project. Therefore, implementation of the Aliso Creek Road is speculative.
10. El Toro Road--The MPAH indicates widening El Toro Road from two lanes to four lanes along its length from the proposed SJHTC to Laguna Canyon Road. The County has not identified funding sources or a schedule for this work.
11. Sand Canyon Avenue--From I-405 to Pacific Coast Highway this road has been deleted from the City of Irvine General Plan as well as the County MPAH. Sand Canyon will terminate south of I-405 at the future Shady Canyon residential development.

12. San Joaquin Hills Road--The proposed extension of San Joaquin Hills Road from Newport Coast Drive to the SJHTC is shown on the MPAH.
13. Michelson Drive--A proposed segment of roadway is designated in an area just south of and parallel to I-405 that would provide a connection between Sand Canyon Road and Old Laguna Canyon Road.
14. Laguna Canyon Road—LCR is an existing three lane road-way extending from PCH to the I-405 freeway. In 1994, the OC Board of Supervisors adopted a Locally Preferred Alternative and certified EIR No. 556 to realign and widen the road. The road project includes installation of three retarding basins as shown in Figure 3 of the LCWP GDP. The realignment planning and permitting is expected to be complete by August, 1998, with award of a construction contract by February, 2000.

As part of the Laguna Canyon Road (LCR) realignment and widening, the old LCR will be removed above Laguna Lake No. 3. A smaller cross-section of the old road location will become a multi-use trail down to Laguna Lake No. 3. Below Lake No. 3, the road realignment and widening project will include removal of old LCR and habitat restoration an enhancement. Access to existing utilities along old LCR will be resolved during preparation of the old LCR Resource Enhancement Management Plan.

B. PHYSICAL RESOURCES






GEOLOGY

The Laguna Coast Wilderness Park is located in the San Joaquin Hills, which are part of the peninsular ranges geomorphic province of southern California. The southeasternmost extremity of the ancient sedimentary rocks within the park are both marine and non-marine formations which represent oscillations in an ancient sea level. These rock formations range in age from 10 to 26 million years old.

Formations present include the Silverado Formation (Paleocene Age), Topanga Formation, Vaqueros Formation and Sespe Formation (Miocene Age). During the Miocene Age, igneous rocks were injected into cracks and veins in the overlying sedimentary rocks. During the Holocene, Pliocene and Pleistocene times (ten million years ago to the present time), uplifting occurred forming the San Joaquin Hills.

The Laguna Coast Wilderness Park topography is characterized by coastal hills and canyons. In response to the tectonic processes that created the coastal hills, coastal canyons developed. These canyons may have developed due to faults (see Exhibit 3), stratigraphic erosion, gravitational erosion or a combination of these forces. Major canyons within the park include Laurel Canyon, Laguna Canyon, Los Trancos Canyon, Muddy Canyon, Moro Canyon, Emerald Canyon, Camarillo Canyon and Boat Canyon.

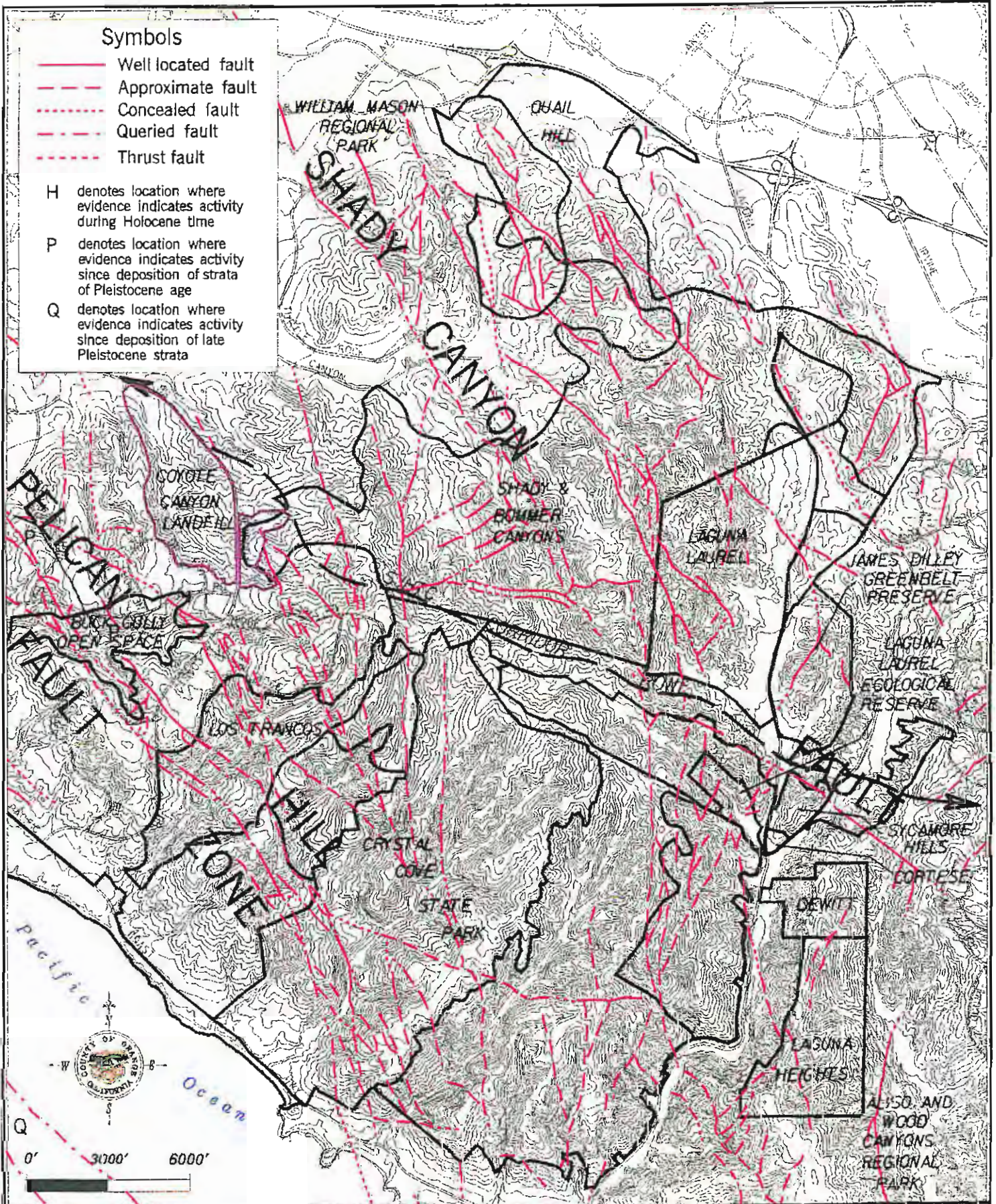
Symbols

-  Well located fault
-  Approximate fault
-  Concealed fault
-  Queried fault
-  Thrust fault

H denotes location where evidence indicates activity during Holocene time

P denotes location where evidence indicates activity since deposition of strata of Pleistocene age

Q denotes location where evidence indicates activity since deposition of late Pleistocene strata



LAGUNA COAST WILDERNESS PARK

County of Orange
Public Facilities & Resources Department
Harbors, Beaches and Parks

FAULTS
Exhibit 3

SOILS

The soils of the park (see Exhibit 4) have been strongly influenced by geomorphic history and sedimentary parent material. The steep slopes support thin, rocky and poorly developed soils with low moisture holding capacity and rapid hydrologic response. The soils are typically poor in organic nutrients, high in minerals, and extremely sensitive to disturbances.

The more gently-sloping foothill areas have developed deeper clay-rich soils from sedimentary rocks that have weathered in place. The higher nutrient content and water-holding capacity of these soils support more mesic plant communities such as non-native grasslands as well as oak and sycamore woodlands.

Old alluvial terraces support gravely or cobble sandy loam with a well-developed clay horizon. Recent alluvium deposited in fans and the floodplain of Laguna Canyon Creek has developed a sandy loam soil lacking a well developed clay horizon.

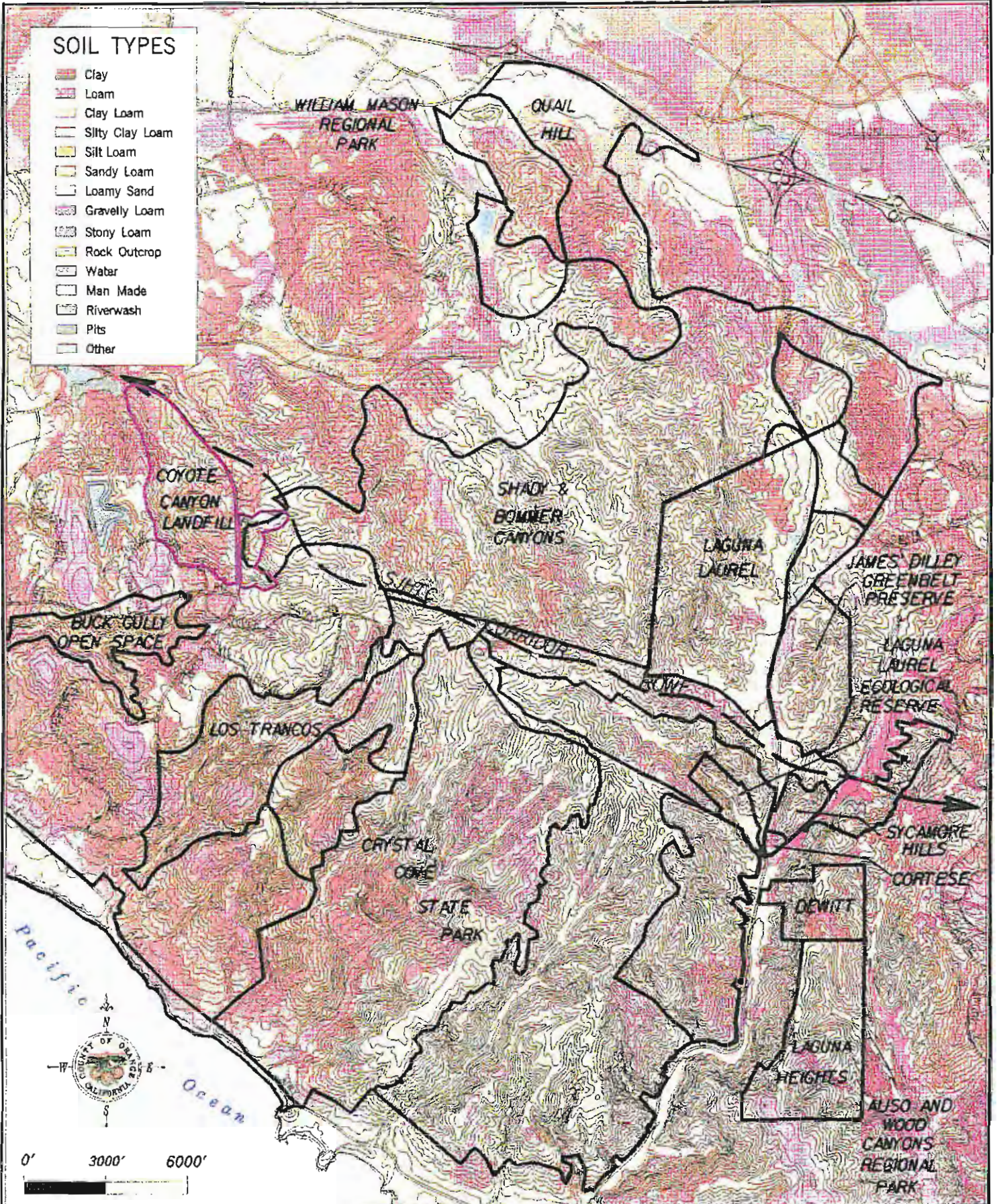
Most of the soils of the watershed have been placed by the Soil Conservation Service in hydrologic group C or D, meaning that they have a slow to very slow rate of water transmission.

TOPOGRAPHY

Laguna Coast Wilderness Park can be characterized as possessing a high ridgeline of over 1,100 feet in the central portion of the park with deep canyons reaching down from this ridge toward sea level. These majestic canyons provide the watershed for the park.



Los Trancos Canyon Watershed



SOIL TYPES

- Clay
- Loam
- Clay Loam
- Silty Clay Loam
- Silt Loam
- Sandy Loam
- Loamy Sand
- Gravelly Loam
- Stony Loam
- Rock Outcrop
- Water
- Man Made
- Riverwash
- Pits
- Other

LAGUNA COAST WILDERNESS PARK

County of Orange
 Public Facilities & Resources Department
 Harbors, Beaches and Parks

SOILS
 Exhibit 4



HYDROLOGY

The primary source of water for the park is rainfall and runoff from surrounding lands. The watershed of Laguna Creek comprises 5,600 acres of steep highly dissected hill slopes and relatively low-gradient alluvial valley floors of the San Joaquin Hills. Runoff is intermittent because the low annual precipitation is insufficient to maintain consistent water flows. Runoff also carries sediment via stream flow to the beach where it replenishes beach sand.

The lack of water is one of the most critical components of the park's ecosystem and the most limiting factor in the survival of plants and animals. As a result, plant and animal species have adapted to the dominant xeric conditions in the park. Annual grasslands in the park have a short life span adapted to the moist winter months. Oak woodlands occur in moist canyons and cool microclimates where they develop deep tap roots to collect groundwater.

The majority of the streams in the park originate in the San Joaquin Hills and flow south to the Pacific Ocean. The primary watercourse in the area is the Laguna Creek which runs parallel to the west side of Laguna Canyon Road originating at the Laguna Lakes and reaching the Pacific Ocean at Main Beach in Laguna Beach.

The three Laguna Lakes have unique value as the only naturally occurring lakes in Orange County. The three Laguna Canyon Lakes formed where alluvial fans from steep tributaries were deposited on the low-gradient valley floor, blocking the flow of Laguna Creek. The lakes are numbered 1, 2 and 3 from upstream to downstream. The lakes, totaling 20 acres in size when full, were historically a single water body. Lakes 1 and 2 are west of Laguna Canyon Road. Lake 3, the largest lake, is east of the road and its connected to Lake 2 by an equalizer under Laguna Canyon Road. Lake 1 is often seasonal, and in dry years contains no water.

The lakes act as natural retarding basins. However, when the retarding capacity of the lakes has been exceeded, the overflow can contribute to flooding downstream. Flooding along the creek and its tributaries is common during the winter months, and portions of Laguna Canyon are located within an area designated as a 100-year flood zone. Laguna Canyon Road is occasionally closed after rains due to flooding. Laguna Canyon Road at the intersection of El Toro Road could potentially reach flooding depths of one to seven feet in the event of a 100-year storm. The Laguna Canyon Road Final Environmental Impact Report No. 556, dated October 1994, thoroughly describes the hydrology patterns in Laguna Canyon and proposes construction of three roadside retarding basins to address flooding problems in this area.

The location of the retarding basins is not expected to negatively impact trail and staging area activities in the park. The basins, projected to be about one acre each in size, must be sensitively designed to integrate into the character of the existing landform. The final location of the basins must be carefully studied to avoid impacts to significant biological resources of the park.

In March, 1994, *The Laguna Lakes Enhancement and Management Plan* was prepared for the Laguna Greenbelt, Inc.. The purpose of the plan was to develop a restoration and management plan to return the lakes to their natural condition as much as possible and to institute long-term management to assure that the restored lakes continue to provide high quality wildlife habitat.

In 1996, the County of Orange began restoring the lakes under a State Coastal Conservancy grant. The Laguna Lakes Restoration project included:

- Removing exotic plant material at Lakes 1, 2 and 3.
- Dredging sediments in Lake 2.
- Constructing an earthen sediment basin at Lake 2.
- Realigning the Lake 3 access road.
- Cleaning out the equalizer pipe between Lakes 2 and 3.
- Alum treatment in Lake 3 to improve water quality.

Habitat restoration planting, the final element of the Laguna Lakes Restoration project, will be implemented in Fall, 1997.

PLANT COMMUNITIES

The NCCP program proposes conservation of coastal sage scrub habitat as well as other valuable habitat types such as chaparral, grasslands, marsh, riparian, woodland, rock outcrops and cliff faces. Laguna Coast Wilderness Park contains large areas of coastal sage scrub, chaparral and annual grassland communities (see Exhibit 5).

1. Venturan-Diegan Transitional Coastal Sage Scrub

Coastal sage scrub comprises over 50% of the park's plant communities in a wide diversity of sage scrub habitats. The park contains 10 "subassociations" of the California sagebrush sage scrub grouping (Venturan-Diegan transitional coastal sage scrub) and another three "associations" including southern cactus scrub, chenopod scrub and a sage scrub-grassland ecotone.

Most of the sage scrub in the park falls within this group of subassociations. Sage scrub is a community of shallow rooted, soft-leaved species of a fairly low stature, that are drought deciduous. These shrubs are rather short-lived and are adapted to periodic fires, readily sprouting from seed or from the base of the parent plant, following such an event. Following a fire, short-lived grasses and forbs are stimulated to grow by a combination of conditions, including fire stimulation, lack of overstory (increasing amount of sunlight reaching the soil), and enriched soil conditions. These short-lived plants provide valuable habitat for animals and enrich the biotic diversity of the park. The coastal sage scrub species groups are distinguished by physical factors including aspect, direction and steepness of slope as well as soil type. See Appendix H for botanical names of plants listed in the following pages.

a. California Sagebrush-Buckwheat

This highly variable subassociation is found on both mesic and drier slopes of the park. It is characterized by a co-dominance of California sagebrush and buckwheat. Other shrub species in this habitat include: black sage, coyote bush, orangebush monkey flower, coastal prickly pear, white sage, California bush sunflower, cudweed aster, coastal isocoma and deerweed. Chaparral elements such as Lemonade berry, holly-leaved redberry and laurel sumac may occasionally be found scattered in the sage scrub habitat. The understory is often grassy on the more mesic slopes, but may be more open and have less herbaceous cover on the drier slopes. This layer is often composed of red brome, foxtail fescue, slender wild oat, soft chess, tocalote, scarlet pimpernel, bi-colored everlasting, summer mustard and black mustard. Native species include California cudweed, common eucrypta, foothill needlegrass, common cryptantha, blue dicks, manroot, branching phacelia, coast Indian paintbrush, tall wreath plant, fascicled tarweed, common golden stars, coast melic, California figwort and Nuttall's bedstraw. Occasionally, exotic species such as artichoke thistle or Indian tree tobacco are found between the shrubs or in the openings of the shrub canopy.

b. California Sagebrush-Orangebush Monkey Flower

The most mesic slopes in the park contain a co-dominance of California sagebrush and Orange bush monkey flower. Other shrubs associated with this habitat include California buckwheat, coyote bush, fuchsia-flowered gooseberry, coastal prickly pear, Mexican elderberry, lemonade berry, holly-leaved redberry, toyon and occasionally black sage. Herbaceous perennials and vines found in this habitat often include large stands of giant wild rye, golden yarrow, sacapellote, chaparral bedstraw and poison oak. The understory includes such non-native species as foxtail fescue, soft chess, chickweed and annual bedstraw. Native species include foothill needlegrass, common eucrypta, manroot, blue dicks, San Diego bent grass, granny's hairnet, miner's lettuce and California cudweed.

c. Sagebrush Scrub

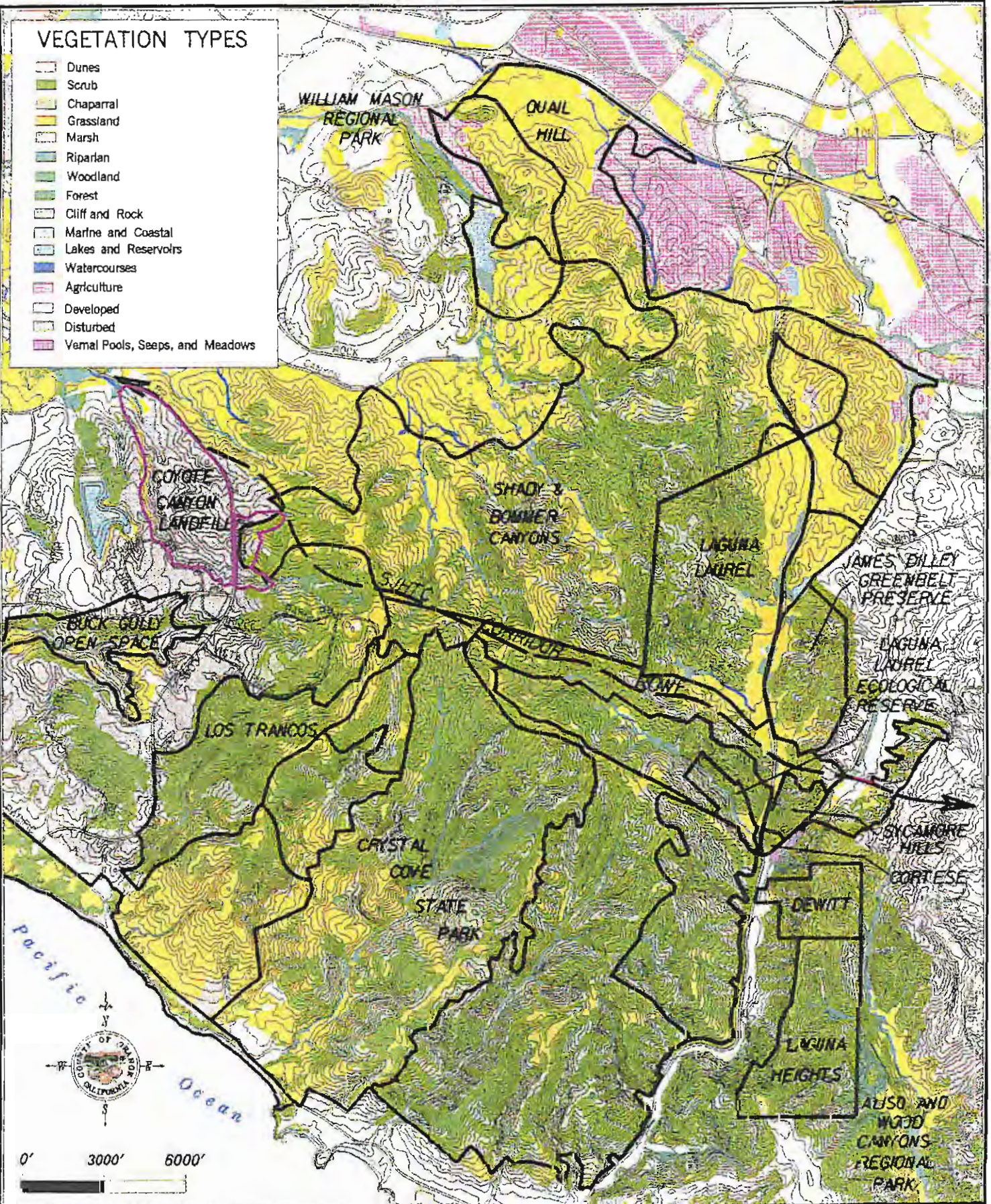
Sagebrush scrub, totally dominated by California sagebrush, is usually found on mesic slopes. Other less common species include California buckwheat, orangebush monkeyflower, black sage, coastal isocoma, coastal prickly pear and occasionally California bush sunflower. Patches of lemonade berry are often found in or near this subassociation. The understory contains foothill needlegrass, red brome, slender wild oat, California cudweed, foxtail fescue, soft chess, annual bedstraw, Nuttall's bedstraw, manroot, tocalote and black mustard.

d. Coyote Bush Scrub

This sage scrub grouping is dominated by coyote bush, at times in monotypic stands. However, in the San Joaquin Hills, the coyote bush is usually associated with orangebush monkey flower and California sagebrush. Less common shrubs include giant wild rye, fuchsia-flowered gooseberry and Mexican elderberry. The understory consists of Nuttall's bedstraw, manroot, foothill needlegrass, nit grass, soft chess, California cudweed and black mustard.

VEGETATION TYPES

- Dunes
- Scrub
- Chaparral
- Grassland
- Marsh
- Riparian
- Woodland
- Forest
- Cliff and Rock
- Marine and Coastal
- Lakes and Reservoirs
- Watercourses
- Agriculture
- Developed
- Disturbed
- Vernal Pools, Seeps, and Meadows



LAGUNA COAST WILDERNESS PARK
 County of Orange
 Public Facilities & Resources Department
 Harbors, Beaches and Parks

VEGETATION
 Exhibit 5

e. Sagebrush Coyote Bush Scrub

The sagebrush coyote bush scrub is a mesic association co-dominated by California sage brush and coyote bush. Otherwise the composition of this community is similar to coyote bush scrub.

f. Black Sage Scrub

This subassociation, dominated by black sage, is usually found on drier east facing slopes, but may also be located in more mesic situations. It may consist of monotypic stands of black sage or be intermixed with interior-flat topped buckwheat, California buckwheat, California sagebrush, California bush sunflower and in more mesic situations orangebush monkey flower. The understory is often very open with mostly litter and duff beneath these shrubs. However, there are often scattered stands of red brome, foothill needlegrass, tocalote and occasionally black mustard.

g. Buckwheat Scrub

Buckwheat scrub is often found on sandstone outcrops on dry south facing slopes. It is dominated by stands of interior flat-topped buckwheat and usually some cover of coastal prickly pear. Black sage, California sagebrush, orangebush monkeyflower, California bush sunflower, and white sage may be present, but in small percentages in relation to the buckwheat. Other shrubs in this habitat include deerweed, pine goldenbush and coastal cholla. Openings in this scrub may include red brome, foxtail fescue, white everlasting, manroot, foothill needlegrass, bi-colored everlasting, giant needlegrass, tocalote, tall wreath plant, California fluff weed and pygmy sand weed.

h. Southern Cactus Scrub

The southern cactus scrub community contains large stands of coastal prickly pear with at least 20% cover. Between the dense cactus clumps there are usually stands of interior flat-topped buckwheat along with California sagebrush, Mexican elderberry, laurel sumac, coastal cholla, deerweed, lemonadeberry, pine goldenbush, black sage, long-stemmed buckwheat and California bush sunflower. The openings in the cactus contain red brome, ripgut brome, tall wreath plant, white everlasting, tocalote, coast melic, manroot, purple needlegrass, common cryptantha, branching phacelia, California figwort and Nuttall's bedstraw.

i. Mixed Sage Scrub

This subassociation has an equally mixed dominance of buckwheat, black sage, white sage or other scrub species. California sagebrush is a minor component or absent entirely from mixed sage scrub.

j. Coastal Bluff Scrub

This poorly defined association of sage scrub is found on coastal bluffs in Crystal Cove State Park and some limited slopes on the north side of Pacific Coast Highway. In the study area, it usually has a dominance of California bush sunflower, usually

associated with California sagebrush, California buckwheat or bluff buckwheat. Other important species include bladderpod, coastal prickly pear, California box thorn, lemonade berry, deerweed, coastal cholla, black sage, four-wing saltbush and woolly sea-blite. The understory and areas between the shrubs contain Australian salt bush, red brome, dove weed, Dean's wreath plant, salt grass, crystal ice plant, Russian thistle, tall wreath plant, common eucrypta and black mustard.

k. Chenopod Scrub

Small areas of Chenopod scrub are found at the base of several canyons on the southern side of the park. This community is characterized by stands of quail bush, coyote bush, coastal isocoma and California buckwheat.

l. Sage Scrub-Grassland Ecotone

Open stands of sage scrub with less than 20% cover are placed in this ecotonal group. Several subassociations are recognized in two general categories, the sage scrub community and the sage scrub-grassland ecotone.

2. Chaparral

Chaparral is a fire adapted plant community. As the community grows, it becomes woody and senescent, producing fuel loads which, combined with the oily resins exuded from the plants, create a highly flammable environment. Naturally occurring fires remove this senescent material and allow forbs and grasses to regenerate in the fertile ash. Chaparral plants respond to fire by crown sprouting and seed germination. These seeds must be scarified by fire or they will not sprout. If a community does not burn within 25 to 30 years, the fuel loads become so heavy that fires are much more devastating, destroying root crowns and seeds. There are five types of chaparral in Laguna Coast Wilderness Park.

a. Toyon-Sumac Chaparral

Chaparral in the park is typically found on mesic facing slopes and consists of stands of lemonade berry, toyon holly-leaved redberry, laurel sumac and Mexican elderberry. Sage scrub species frequently found in these chaparral stands include California sagebrush, coyote bush, fuchsia-flowered gooseberry, saw-toothed goldenbush, poison oak, California buckwheat, orangebush monkeyflower and giant wildrye. The understory contains common eucrypta, coast melic, branching phacelia, foothill needlegrass, golden yarrow, blue dicks, manroot and goldback fern.

b. Chamisal Chaparral

A few isolated stands of chamisal chaparral exist in the park, but this normally ubiquitous vegetation type is very uncommon along the coast. Chamisal chaparral is dominated by chamise along with some scattered interior flat-topped buckwheat, California matchweed and rush rose. The understory contains foothill needlegrass and red brome.

c. Scrub Oak Chaparral

This chaparral community is sporadic in the park, usually confined to north facing

slopes. It is characterized by scrub oak, toyon, holly-leaved redberry, Mexican elderberry, lemonade berry, heart-leaved penstemon, giant wildrye, poison oak and manroot.

d. Southern Maritime Chaparral

Maritime chaparral is found along the coast of San Diego County and northern Baja California. The stands in Orange County represent the northern distribution of this vegetation type. Within the park, it only occurs in a few isolated stands, principally in Los Trancos Canyon. The community is characterized by the presence of Nuttall's scrub oak, bush rue, summer holly and big-pod ceanothus. In the park, the southern maritime chaparral includes Nuttall's scrub oak, bush rue (along Laguna Canyon), big-pod ceanothus, lemonade berry, California bush sunflower, holly-leaved redberry, mountain mahogany, toyon, fuchsia-flowered gooseberry and coast prickly pear.

Southern maritime chaparral is a plant community of concern. This chaparral habitat supports many of the same wildlife species found in coastal sage scrub. In addition, the scrub oak and some of the other chaparral plants provide food sources such as acorns and browse vegetation which do not occur in coastal sage scrub.

e. Sage Scrub-Chaparral Ecotone

Sites containing 20-50% chaparral species mixed with coastal sage scrub in the park are labeled as sage-scrub chaparral ecotone. In the park, two subassociations are recognized including a scrub oak-sagebrush and a scrub oak-sage scrub.

3. Grasslands

The grassland community which exists in the park today is vastly different from the historic park grassland. Areas where cattle grazed have converted from native grasses to exotic annual grasslands dominated by annual and perennial herbs. These non-native plants, often considered weeds, include grasses such as bromes, wild oats, barley, and herbs such as mustard and thistles. There are three types of grassland in the park.

a. Annual Grassland

Annual grasslands are a predominant community in the northwestern and northeastern part of the park. The area immediately west of Laguna Canyon Road also contains a large valley of annual grassland along the canyon floor, below 400 feet in elevation. Other areas which are characterized by annual grasses include areas east of Laguna Canyon Road and north of Camarillo Canyon.

The grasslands are characterized by naturalized non-native grasses and forbs such as red brome, ripgut brome, foxtail barley, soft chess, summer mustard, foxtail fescue, slender wild oat, black mustard, red-stemmed filaree, tocalote, wild oat, schismus, perennial rye grass, purple false brome, long-beaked filaree, doveweed, smooth cat's ear, summer mustard, bur clover, scarlet pimpernel and wild radish. Artichoke thistle may also occur in minor to dense infestations in these grassland habitats.

Native forbs in these grasslands may include common fiddleneck, miniature lupine, California popcorn flower, common cryptantha, fascicled tarweed, Spanish clover, western ragweed, tall wreath plant, dove weed and telegraph weed. Scattered shrubs found in these grasslands may consist of Box springs goldenbush, coastal isocoma, cudweed aster and occasionally interior flat-topped buckwheat.

b. Southern coastal needlegrass grassland

The park contains fairly large areas of needlegrass, usually found on the margins of coastal sage scrub habitats. This grassland is composed of at least 10% cover of purple needlegrass plus other grasses such as soft chess, perennial ryegrass, slender wild oat, foxtail fescue, nitgrass, San Diego bent grass, foothill needle grass and Malpais blue grass. Forbs found in these perennial grasslands include blue-eyed grass, Padre's shooting stars, Johnny jump ups, long-beak filaree, coast jepsonia, rattlesnake weed, dove weed, golden stars, sapphire woolly star, summer mustard, rosin weed, blue dicks, smooth cat's ear, splendid mariposa lily, purple owl's clover and Pacific sanicle.

c. Ruderal grassland

Roadsides and other highly disturbed sites exhibit a ruderal or disturbed annual vegetation. Typically these are non-native annual species such as rip-gut brome, red brome, foxtail fescue, foxtail barley, wild oat, nettle-leaved goosefoot, cheese weed, common horseweed, poison hemlock, fennel, Australian brass buttons, wild radish, London rocket, lamb's quarters, bur clover, tocalote, black mustard, horehound, red scape, red-stemmed filaree, bull thistle, Australian salt bush, Russian thistle, summer mustard, crystal ice plant and scarlet pimpernel. Perennial weedy species found in these disturbed sites are Indian tree tobacco, fountain grass, artichoke thistle and pampas grass. Some native species are also found in these open habitats especially common horseweed, western ragweed, telegraph weed and western sunflower.

4. Seasonal Wetlands

Seasonal wetlands are found in the canyon bottoms and within Laguna Canyon. They are frequently to infrequently flooded and are dominated by herbaceous species.

a. Alkali meadow

Alkali meadow habitats, characterized by perennial grasses, sedge rushes and forbs, are periodically to infrequently saturated. In the park, alkali meadows are principally found along the bottom of Laguna Canyon. Typical species of these meadows include: salt grass, Mexican rush, clustered field sedge, pale spike rush, Bermuda grass and curly dock. Common annual species found in the meadows include rabbit's foot grass, western ragweed, white sweet clover, alkali weed, soft chess, black mustard, prickly sow thistle, annual bluegrass, seep monkey flower, western verbena, common plantain, scarlet pimpernel, bur clover and prickly ox-tongue.

5. Marsh

Freshwater brackish marshes are found in sites such as the Laguna Lakes which are flooded for a long period of time.

a. Brackish marsh

Brackish marshes have a similar species composition to the freshwater marshes, being dominated by perennial, emergent species such as the California bulrush and broad-leaved cat-tail, but occur in brackish water or alkaline soils. Small areas of brackish marsh have been mapped along the Laguna Lakes and in portions of Laguna Canyon.

b. Coastal freshwater marsh

Freshwater marsh areas are found adjacent to and below Laguna Lake No. 3. These marshes are dominated by emergent, perennial species including California bulrush, narrow leaved cat-tail, broad-leaved cat-tail, umbrella sedge, Olney's bulrush, three-square and coastal bulrush. The margins of the marshes contain smaller species, especially the spike rush, Mexican rush, sedges, Yerba mansa and African brass buttons.

6. Riparian

Riparian communities are those found adjacent to stream channels, lakes or ponds. The communities may consist of habitats dominated by herbaceous species to densely layered forests. The riparian communities are considered sensitive by CDFG (Holland 1986). In the Laguna Coast Wilderness Park seven types of riparian communities are found including:

a. Riparian herb

The riparian herb community is found in swales or small drainages in the study area and consists of annual to perennial grasses and forbs. The margins above the swale or drainage often contain a grassy community comprised of Bermuda grass, rabbit's foot grass, perennial wild rye, salt grass, along with forbs such as white and yellow sweet clover, pale spike rush, wild radish, common plantain, beggar ticks, cocklebur, prickly sow thistle, Spanish sunflower, western verbena and Mexican tea. Along the upper margin of the channel more hydrophytic grasses and forbs are found including barnyard grass, common celery, curly dock, sprangle top, African brass buttons, and dallis grass. Along the water's edge hydrophytic species exist such as water cress, Mexican speedwell, pale spike rush and umbrella sedge.

b. Bramble thicket

Two types of bramble thickets in the Laguna Canyon area include areas with dense stands of California rose, along with poison oak and Mexican elderberry. The second thicket type contains dense stands of poison oak.

c. Southern willow scrub

This scrub contains an overstory of arroyo willow, along with mulefat and some

black willow and red willow seedlings and saplings. Weedy species found in this scrub included castor bean, giant reed, Indian tree tobacco and pampas grass. Beneath this dense scrub cover there is an open understory composed of giant stinging nettle, yellow sweet clover, lamb's quarters, bull thistle, cocklebur, common celery, curly dock, bristly ox-tongue, rabbit's foot grass, poison hemlock, Spanish sunflower, and prickly sow thistle. This scrub may contain more hydrophytic species, such as water cress or pale spike rush.

d. Mulefat scrub

This riparian scrub community is comprised of dense thickets of mulefat, along with a few scattered arroyo willows or red willow seedlings. Other scrubs commonly found include coyote brush, Mexican elderberry and occasionally toyon. Weedy species especially castor bean and Indian tree tobacco were also occasionally found in this community. The understory is composed of western ragweed, yellow sweet clover, curly dock, prickly sow thistle, rabbit's foot grass, cocklebur, black mustard, soft chess and common eucrypta. In a few areas this scrub is associated with seeps, rather than a streamcourse and at these sites the mulefat is associated with Dallis grass, artichoke, cocklebur, perennial ryegrass, common horsetail, Mexican tea, curly dock, common sow thistle and western ragweed.

e. Southern willow riparian forest and Black willow riparian forest

The willow forests consist of a complex three layer canopy of willow species. The upper and midcanopy layers are composed of black and red willow, along with some larger arroyo willows. Many of these forests are principally dominated by black willow and have been classified as a separate forest type. In the park, willow riparian forests exist in the Laguna Canyon near the lakes. Other areas of this community may also be present in Emerald and Moro Canyon. Beneath the canopy, a shrub layer of mulefat, arroyo and sandbar willow may also be present. The understory in this community is composed of scattered stands of yellow sweet clover, giant stinging nettle, western ragweed, curly dock, umbrella sedge, downy monkeyflower and ripgut brome.

f. Southern sycamore riparian woodland

The sycamore woodland is formed of open stands of western sycamore, along with coast live oak, Mexican elderberry and occasionally some arroyo willow or mulefat. Other shrubs that may be present include laurel sumac, holly-leaved redberry, toyon, giant wild rye and lemonadeberry. The understory is usually formed of dense stands of annual grasses especially ripgut brome, slender wild oat, foxtail barley and soft chess. Forbs in this understory consist of chickweed and red-stemmed filaree.

g. Coast live oak riparian forest

This forest is restricted to a narrow corridor along drainages in the park and is formed by a dense overstory of coast live oaks, with greater than 60% canopy. Western sycamores may also be present, but in low numbers. Shrubs present in the secondary layer of this forest include laurel sumac, holly-leaved redberry, snowbush, fuchsia-flowered gooseberry, lemonadeberry, toyon, scrub oak and Mexican

elderberry. Poison oak, heart-leaved bush penstemon, manroot and occasionally black berry are common vines found in the canopy and on the forest floor. The understory contains a variety of forbs including common eucrypta, branching phacelia, miner's lettuce, horehound, giant wild rye, wood fern, California polypody, chickweed and fiesta flower. Annual grasses, especially ripgut brome, soft chess and foxtail barley are also common in the shade of these oak trees.

7. Woodland

a. Coast live oak woodland

The coast live oak woodland is considered a significant plant community whose canopy forms important habitat for a number of bird species, especially raptors. The oak tree acorns are an important food source for a number of animal species. The coast live oak woodland is open to dense stands of coast live oak trees not associated with a stream channel. In between the oaks are a number of tall shrubs such as Mexican elderberry, laurel sumac, toyon, fuchsia-flowered gooseberry, lemonade berry, holly-leaved redberry and giant wild rye. Unlike the oak riparian forest, the understory is often very grassy and dominated by ripgut brome or foxtail barley. Other species in the understory include chickweed, milk thistle, chickweed hedge mustard, horehound, black mustard, common eucrypta and miner's lettuce.

b. Mexican elderberry woodland

The Mexican elderberry woodland is characterized by open stands of Mexican elderberry often at the margins of oak or sycamore woodlands. Other shrubs associated with this species include holly-leaved redberry, laurel sumac, lemonade berry and toyon. The understory is usually comprised of an annual grassland dominated by ripgut brome, soft chess or wild oats. Other species in the grassland include horehound, black mustard, tocalote and red-stemmed filaree.

8. Rock outcrops and cliff faces

a. Rock outcrops

The rock outcrops and surface rock exposures or "barrens" form habitats that harbor a large number of unique plant species. These areas may have a few scattered interior flat-topped buckwheat or coastal isocoma shrubs, although many sites are more characterized by scattered patches of coastal prickly pear, coastal cholla or other cactus species. Other characteristic species include annual grasses, foothill needlegrass, giant stipa, rock rose, rosin weed, California fluff weed, red brome, littleseed muhly, splendid mariposa lily, silver beardgrass, fascicled tarweed and the lance-leaved liveforever.

The sandy areas on the margins of these outcrops often contain a scattered annual flora. Characteristic species include the sand mat, California croton, Australian salt bush, fascicled tarweed, California plantain, annual sandbur, yellow pincushion, bi-colored cudweed and telegraph weed.

These outcrops also represent important habitat for several species of special interest, especially the many-stemmed dudleya, Laguna Beach dudleya, intermediate mariposa lily, and the endemic form of the Turkish rugging.

b. Cliff faces

Both mesic and xeric cliff faces are found within the park. The mesic faces are often typified by a characteristic cover of mosses and lichens. Vascular plant species found on these steep slopes include bush spikemoss along with several fern species including goldenback fern, coffee fern and California polypody. Other species found on these rocks are the lance-leaved dudleya, California fuchsia and Granny's hairnet. The only shrubs usually present are a few scattered saw-toothed goldenbush.

In contrast the xeric cliff faces contain a scattered cover of interior flat-topped buckwheat, coastal prickly pear, California match weed, giant stipa, and silver beard grass on the less steep portions of the cliffs. The cliff faces contain lance-leaved dudleya, chalk lettuce, bird's foot fern, fascicled tarweed, California fluff weed, cluff malacothrix, common cryptantha, schismus, three-awn grass, shiny peppergrass, red brome and golondrina.

9. Lakes

The three Laguna Lakes contain an open water habitat with phytoplankton and algae. These lakes also contain a number of vascular aquatic species including: horned pond weed, common American pondweed, lesser duckweed, mosquito fern, and water hyacinth. The shoreline often contains an open cover of wetland species especially sharp-leaved crypsis, lythrum, upright bur-head, seep monkey flower, common plantain, toad rush, soft chess, green willow herb and weedy cudweed.

10. Ornamental

The park contains a number of sites which have extensive plantings of horticultural trees and shrubs. These are principally represented by stands of eucalyptus trees found in a number of localities on the periphery of the park, such as Laguna Canyon Road. A site north of Laguna Canyon contains an abandoned grove of English walnut trees.

PLANT SPECIES AND COMMUNITIES OF SPECIAL INTEREST

1. Plant Species of Special Interest

Species of special interest are defined as those animal and plant species of concern to the California Department of Fish and Game (CDFG), California Natural Diversity Data Base (CNDDDB), U.S. Fish and Wildlife Service (USFWS) and the County of Orange. These species are summarized in lists including:

- County of Orange list of species of special interest (Dames and Moore 1994)

- CNDDDB list of animal and plant species of concern (CNDDDB 1994, 1995)
- USFWS list of candidate wildlife and plant species (USFWS 1996)
- CDFG's NCCP Guidelines list of species of concern (CDFG 1992)
- California Native Plant Society list of species of concern (Skinner and Pavlik 1994)

These lists include:

- Species listed by the state or federal government as endangered, threatened or rare and species which are candidates for future listing.
- Species determined by the CNDDDB to meet the CEQA criteria for "rare and endangered", even though they have not been officially listed by any agency are also noted on these lists.
- Species noted by the Native Plant Society as "rare or endangered" or of limited distribution and requiring consideration in CEQA or planning studies in the region.

Previous studies were reviewed to determine the distribution of plant or animal species of concern in the general region of the project including; the San Joaquin Hills Corridor EIR (LSA 1992, PRC 1986), the Laguna Beach biological resources inventory (Marsh et al. 1986), the Laguna Canyon Road re-alignment study (LSA 1993) and the Laguna Laurel Resources study (Chambers 1991). Based on these studies and the County database, the plant species of concern potentially occurring in Laguna Coast Wilderness Park are listed in Table 1.

2. Plant Communities of Special Interest

Plant species of concern are those depleted habitats noted on the County of Orange list of habitat types of special interest (Dames and Moore and Bramlet 1992) and by the CNDDDB (Holland 1986) and CDFG (1992) lists. The sensitive plant communities listed by the CNDBB (1992) or other sources as potentially occurring in the project vicinity are Venturan-Diegan sage scrub, southern maritime chaparral, native grassland, alkali meadows, coast live oak riparian forest, willow riparian forest, and various other riparian (streamside) habitats and oak woodlands.



Cholla cactus in the Dilley Preserve

SENSITIVE WILDLIFE SPECIES

Sensitive species are those animals occurring or potentially occurring on the project site that are rare or endangered, are of current local, regional or State concern, or those target species listed in Chapter 2 of the Central and Coastal NCCP/HCP. Exhibit 6 shows known target and sensitive animal species locations within Laguna Coast Wilderness Park.

Inclusion on the park's sensitive species list is based on the following criteria:

- Direct observation of the species or its sign in the park in previous biological surveys.
- Sighting by qualified observers.
- Reported records in the California Natural Diversity Data Base (CNDDDB) published by CDGF.
- Listing of location specific sensitive species by private groups.
- Location of appropriate habitat in the park within known distribution of a given species.

Table 1: Plant Species of Special Concern Known to Occur in Laguna Coast Wilderness Park

SPECIES	STATUS	KNOWN LOCALITIES
<i>Atriplex coulteri</i> (Coulter's saltbush)	CNPS 1B	Signal Peak, Upper Bommer Cyn., San Joaquin Hills
<i>Brodiaea jolonensis</i> (Mesa brodiaea)	Locally rare	East of Shady Cyn., UCI Ecological Reserve
<i>Calochortus catalinae</i> (Catalina mariposa lily)	CNPS 4	San Joaquin Hills, Shady Canyon
<i>Calochortus weedii</i> var. <i>intermedius</i> (Foothill mariposa lily)	CNPS 1B	San Joaquin Hills, Little Sycamore Cyn., Emerald Cyn., Ridgeline East of Bommer Canyon
<i>Caulanthus heterophyllus</i> var. <i>pseudosimulans</i> (False Payson's jewelflower)	Locally rare	Camarillo Cyn.
<i>Chorizanthe procumbens</i> (Prostrate spineflower)	CNPS 4	Laguna Cyn., Little Sycamore Cyn., Spur N. Camarillo Cyn.
<i>Chorizanthe staticoides</i> var. <i>chrysacantha</i> (Orange County turkish rugging)	Locally rare	Shady Canyon, N. Camarillo Cyn., Ridgeline above Little Sycamore Cyn.
<i>Dichondra occidentalis</i> (Western dichondra)	CNPS 4	San Joaquin Hills
<i>Dudleya multicaulis</i> (Many-stemmed dudleya)	CNPS 1B	San Joaquin Hills, Shady Cyn., Spur N. Camarillo Cyn., Laurel Cyn.
<i>Dudleya stolonifera</i> (Laguna Beach dudleya)	PFE, ST CNPS 1B	Laguna Canyon, Aliso Cyn., Laurel Cyn.
<i>Echinodorus berteroi</i> (Upright burhead)	Locally rare	Shady Cyn. Reservoir
<i>Hemizonia parryi</i> ssp. <i>australis</i> (Southern tarplant)	CNPS 1B	Laguna Canyon, Sand Cyn. Reservoir
<i>Hordeum intercedens</i> (Vernal barley)	CNPS 3	French Hill Area, UCI Ecological Reserve
<i>Marsilea vestita</i> (Hairy pepperwort)	Locally rare	Laguna Lakes
<i>Microseris douglassi</i> var. <i>platycarpa</i> (Small flowered microseris)	List 4	UCI Ecological Reserve W. end of Sand Canyon Ave.
<i>Mullia maritima</i> (Rough mullia)	Locally rare	San Joaquin Hills
<i>Physalis greeneri</i> (Greene's ground cherry)	---	San Joaquin Hills, Aliso Hills
<i>Polygala cornuta</i> var. <i>fishiae</i> (Fish's milkwort)	List 4	Laurel Cyn., San Joaquin Hills
<i>Quercus dumosa</i> (Nuttall's scrub oak)	CNPS 1B	Pelican Hill, Los Trancos Cyn., South Laguna
<i>Quercus lobata</i> (Valley oak)	List 4	Moro Canyon
<i>Salvia spathacea</i> (Hummingbird sage)	Locally rare	Moro Canyon
<i>Selaginella cinerascens</i> (Ashy spike-moss)	CNPS 4	Shady Canyon
<i>Senecio aphanactis</i> (California groundsel)	CNPS 2	San Joaquin Hills, UCI Ecological Reserve
<i>Suaeda taxifolia</i> (Woolly seablite)	CNPS 4	Newport-Laguna Coast, Upper Newport Bay

1. Listed Species

- a. Coastal California Gnatcatcher
(*Polioptila californica*)
This bird is a federally listed threatened species, a California Species of Special Concern and a NCCP/HCP target species.

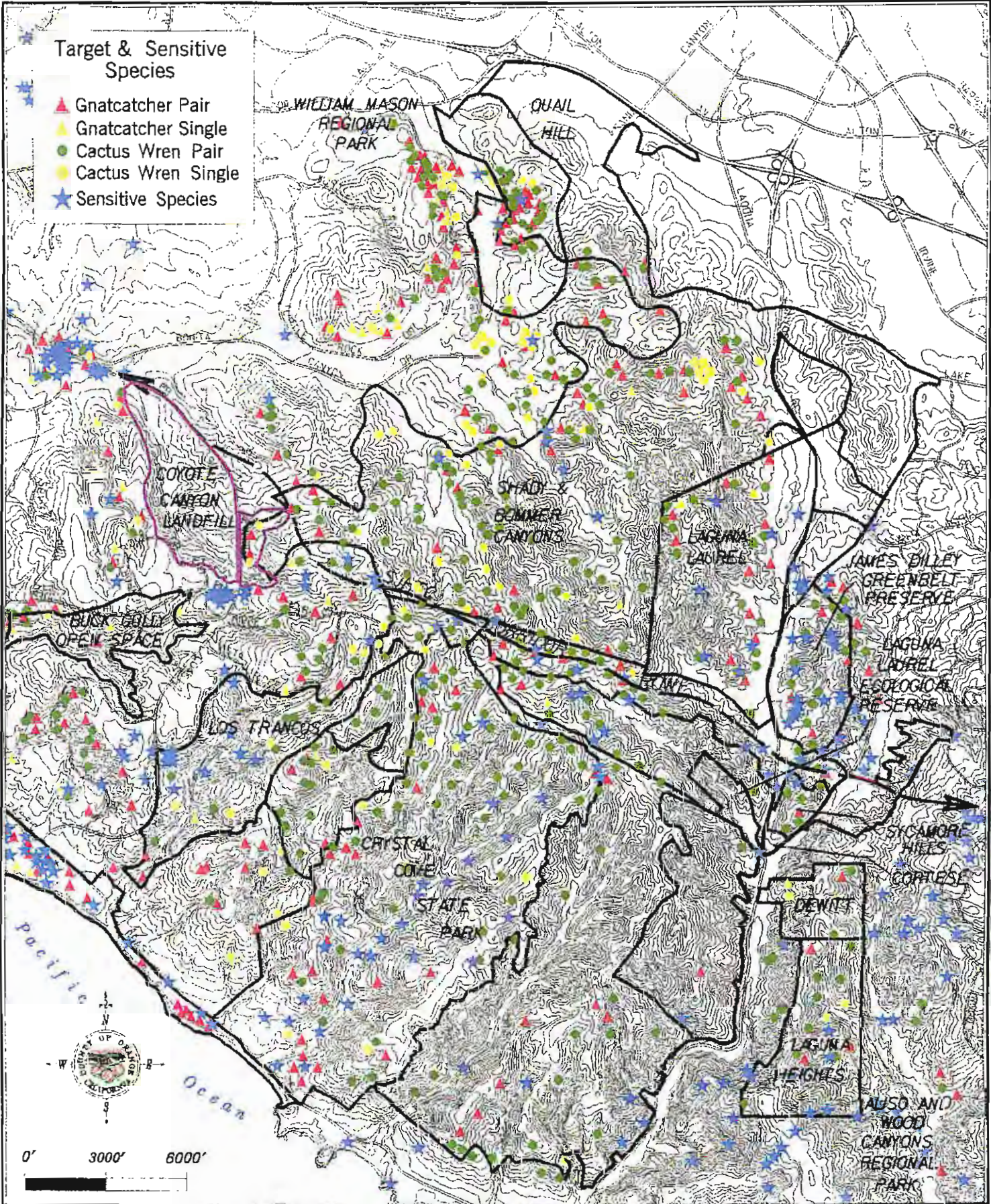


Coastal California Gnatcatcher

- b. Least Bell's Vireo (*Vireo bellii pusilus*)
This species is listed as endangered by both State and federal resource agencies. Least Bell's vireo utilizes large patches of willow scrub and mulefat scrub habitat for nesting. The decline of this species has been attributed to the loss of riparian habitat combined with brood parasitism by the brown-headed cowbird. The species was reported as occurring in the park during Spring, 1996 in Moro Canyon. It is not likely to occur due to the limited size of suitable habitat areas and the current level of disturbance. But, the potential for this species to occur in the future cannot be ruled out once riparian habitat expands through enhancement and restoration efforts.
- c. Pacific Pocket Mouse (*Perognathus longimembris pacificus*)
The Pacific pocket mouse was emergency listed as endangered by USFWS on January 31, 1994, and is a California Species of Special Concern. Individuals may be found in loose soils in dry areas of low elevation, coastal sage scrub and coastal strand associations. Until recently, the last recorded occurrences of Pacific pocket mice were small numbers in the Spyglass Hill area of Newport Beach between 1968 and 1971, before the area was developed. The species was recently rediscovered in 1993 in a small area of coastal sage scrub on the Dana Point Headland.

Focused trapping efforts to locate this species in the Laguna Canyon Road project area in August, 1992, consisting of 482 trap-nights, failed to find any individuals. But, its potential occurrence in the park cannot be ruled out.

- d. Wright's "Quino" Checkerspot Butterfly (*Euphydryas editha quino*)
This butterfly is a federally listed endangered species. This butterfly, which historically occupied open grassy sites, has experienced extraordinary decline in California over the past 30 years. Historical records of this species' occurrence include Laguna Lakes.
- e. California Red-legged Frog (*Rana aurora draytoni*)
The California red-legged frog is a federal listed threatened species and a California Species of Special Concern. This insectivorous amphibian requires dense, shrubby or emergent riparian vegetation associated with relatively deep, still or slow moving water. Ephemeral streams may be occupied if surface water remains available throughout the year somewhere in the stream system.



LAGUNA COAST WILDERNESS PARK
 County of Orange
 Public Facilities & Resources Department
 Harbors, Beaches and Parks

KNOWN SENSITIVE ANIMAL LOCATIONS
 Exhibit 6

2. Non-listed amphibians and reptiles

a. Western Spadefoot (*Scaphiopus hammondi*)

This small toad is a California Species of Special Concern. Grasslands and other open habitats in the lowlands provide this toad's primary habitat, but it also ranges into foothills and mountains. Gravelly soils are frequently present in occupied areas. No reports of this species occurring in the park have been noted. However, potentially suitable habitat for the species is present in the park.

b. Southwestern (Pacific) Pond Turtle (*Clemmys marmorata pallida*)

This federal Category 1 Candidate and California Species of Special Concern occurs in a wide range of permanent and intermittent aquatic habitats. Upland areas beyond the often densely vegetated riparian zone are used for nesting. The natural lakes in the park provide potential habitat for this turtle.

c. San Diego Horned Lizard (*Phrynosoma coronatum blainvillei*)

The San Diego horned lizard is a federal Category 2 Candidate species and a California Species of Special Concern. This species can occur in a variety of habitats but is most common along sandy washes that have low bushes for cover, open spaces for sunning and patches of fine, loose soil for burial. Portions of the park contains loose sandy soils and an abundance of ants, the horned lizard's prey. Therefore, this species is expected to occur in the coastal sage scrub on the slopes, in sandy drainages, and open or disturbed areas near washes or coastal sage scrub.

d. Orange-Throated Whiptail (*Cnemidophorus hyperythrus*)

The orange-throated whiptail lizard is a federal Category 2 Candidate species, and a California Species of Special Concern. The orange-throated whiptail is a target species for the Central and Coastal NCCP/HCP because it is an indicator of coastal sage scrub with high habitat value and high sensitivity. Two individuals were reported east of Lake No. 3 in coastal sage scrub in the Chambers Group study (1991). This species inhabits sandy places with rocks and patches of brush, primarily coastal sage scrub and associated ecotonal habitats.

e. Coastal Western Whiptail (*Cnemidophorus tigris multisculatus*)

The coastal western whiptail lizard is a federal Category 2 Candidate species. This species usually occurs where plants are sparse and there is room for running. The coastal western whiptail eats other lizards as well as invertebrates. This species was observed during surveys of the Laguna Laurel parcel conducted by the Chambers Group in 1991, and is likely to occur in upland scrub, chaparral or disturbed habitats of the park.

f. Silvery Legless Lizard (*Anniella pulchra*)

This animal is a California Species of Special Concern. Silvery legless lizards inhabit open areas of loose soil and humus where they can reach damp soil. Although no reports are known of this species occurrence in the park, potentially suitable habitat occurs at the lakes and associated wetlands.

- g. Coastal Rosy Boa (*Charina trivirgata rosafusca*)
This heavy bodied snake is a federal Category 2 Candidate. Rosy boas are chiefly nocturnal, and inhabit rocky scrublands where they feed on small mammals and birds. This reptile was reported in Boat Canyon.
- h. San Bernadino Ring-Necked Snake (*Diadophis punctatus modestus*)
This small snake is a Category Candidate that inhabits moist areas. It is seldom seen in the open and prefers oak woodlands and mixed chaparral. Although it has not been reported in the park, habitat for the snake is present in the dense chaparral and oak woodland habitats on slopes in side canyons.
- i. Coastal Patch-Nosed Snake (*Salvadora hexalepis virgultea*)
The coastal patch-nosed snake is a federal Category 2 Candidate species and also a California Species of Special Concern. The snake is active during the day and could inhabit the upland scrub of the park.
- j. Two-Striped Garter Snake (*Thamnophis hammondi*)
The two-striped garter snake is listed as a federal Category 2 Candidate species and is a California Special Animal. It is very similar to the western aquatic garter snake (*Thamnophis couchii*). The garter snake is highly aquatic and only occurs in or near permanent sources of water. Although it has not been observed in previous studies, the park contains appropriate habitat for this species.
- k. Southern Red Diamond Rattlesnake (*Crotalus ruber ruber*)
The northern red diamond rattlesnake is a federal Category 2 Candidate and a California Species of Special Concern. It feeds on ground squirrels, rabbits and birds and is not normally known to be aggressive to humans. Red diamond rattlesnakes have been frequently observed in the park.

3. Non-listed birds

- a. White-Tailed Kite (*Elanus caeruleus*)
Like all birds of prey, this year round resident is a State fully protected species. It is protected from hunting and collecting without special permit. This species is also a California Special Animal because it is considered to be declining throughout its range. White-tailed kites forage primarily in and around grassy fields, nesting in well developed riparian woodlands located near suitable hunting grounds. At least one individual has been observed foraging in the park during the winter of 1993/1994 by biologist Dr. Elisabeth Brown.
- b. Northern Harrier (*Circus cyaneus*)
This hawk is a California Species of Special Concern that forages over a wide range of open habitats. It has been observed in recent years in several localities near Laguna Canyon and elsewhere in the San Joaquin Hills. This species is expected to forage occasionally and could potentially breed in grasslands in the park.

- c. Cooper's Hawk (*Accipiter cooperii*)
Cooper's hawk is a California Species of Special Concern which generally uses riparian habitat for nesting. Foraging occurs over a much wider range of habitats. Potential nesting habitat occurs in the park's sycamore/oak woodland communities.
- d. Ferruginous Hawk (*Buteo regalis*)
This large raptor is a federal Category 2 Candidate and a California Species of Special Concern. Widespread development of grasslands that provide foraging habitat for the ferruginous hawk has led to this species' decline throughout much of southern California. A single hawk was observed north of the lakes on December 3, 1993 by an LSA biologist.
- e. Burrowing Owl (*Speotyto cunicularia*)
The Burrowing owl is a California Species of Special Concern, but is not otherwise listed. It primarily inhabits grassland or other open areas that have an abundance of ground squirrel holes, its preferred nesting site. The species has declined significantly over much of its range in the state, due to conversion of grasslands and pasture lands to agriculture and destruction of ground squirrel colonies. Although this owl has not been reported in the park, suitable nesting sites are in abundance in the park.
- f. California Horned Lark (*Eremophila alpestris actia*)
This California horned lark is a federal Category 2 Candidate and a California Species of Special Concern. Horned larks reside in grasslands, and could nest in this habitat in the park. This species was observed during the Chambers Group Study (1991) of the Laguna Laurel parcel.
- g. Coastal Cactus Wren
(*Campylorhynchus brunneicapillus couesi*)
The Southern California coastal population of the cactus wren is considered a federal Category 2 Candidate and a California Species of Special Concern. The coastal cactus wren is a NCCP target species because it is an indicator of coastal sage scrub with high habitat value and high sensitivity. This species occurs in coastal sage scrub areas in various locations within the park.



Nesting coastal cactus wren

- h. Loggerhead Shrike (*Lanius ludovicianus*)
The loggerhead shrike is a federal 2 Candidate and California Species of Special Concern. This small carnivorous bird favors grassland and other relatively flat, open country where it feeds primarily on large insects and occasionally vertebrate prey.
- i. Southern Californai Rufous-crowned Sparrow (*Aimophila ruficeps canescens*)
This subspecies of rufous-crowned sparrow is a federal Category 2 Candidate and a California Species of Special Concern. This species occurs in a variety of open scrub habitats. It is expected to occur throughout coastal sage scrub habitat in the park.
- j. Yellow Warbler (*Dendroica petechia*)
The yellow warbler is a California Species of Special Concern found in riparian habitats. This species has been regularly observed in riparian habitat within the park.
- k. Yellow-breasted Chat (*Icteria virens*)
The yellow-breasted chat is a California Species of Special Concern that prefers habitat similar to the least Bell's vireo. Although no individuals have been observed in Laguna Canyon, potential habitat does exist for this species in the park.
- l. Grasshopper Sparrow (*Ammodramus savannarum*)
The grasshopper sparrow is not included on any State or Federal lists of sensitive species, but is considered of local interest in coastal Southern California due to past and ongoing loss and degradation of their habitat. Grasshopper sparrows require tall grasslands that provide occasional taller bushes, weedy stems, fence posts, etc. for perching and singing. In Orange County, they are most reliably found in native grasslands dominated by needlegrass. Cessation of grazing throughout Laguna Canyon's grasslands has apparently permitted the grasslands to recover to the point where many portions of the canyon provide habitat for this species.
- m. Tricolored Blackbird (*Agelaius tricolor*)
The tricolored blackbird is a federal Category 2 Candidate species and a California Species of Special Concern. It nests primarily in dense reedbeds, sometimes in blackberry thickets and occasionally in thistles. The marsh habitats that occur in the Laguna Lakes and Laguna Canyon Creek are suitable, and the species has been observed in the lake habitat during the breeding season.

5. Non-listed mammals

- a. Pallid bat (*Antrozous pallidus*)
Pallid bats are a California Species of Special Concern. The pallid bat occurs in a variety of habitats often oak and grassland habitats such as occur in the San Joaquin Hills. Like 40 percent of all bat species in the State, this is a California Species of Special Concern. It is likely this species roosts in oaks and rocky areas in the project vicinity.

- b. California Mastiff Bat (*Eumops perotis californicus*)
The California mastiff bat is a federal Category 2 Candidate and a California Species of Special Concern. This species, the largest of all North American bats, occurs in rocky areas at low elevations where roosting occurs primarily in crevices. No bats have been identified as currently roosting in the park however potential rock outcrop roosting sites occur in the park.
- c. San Diego Black-Tailed Jackrabbit (*Lepus californicus bennettii*)
This subspecies of the black-tailed jackrabbit is a federal Category 2 Candidate and a California Species of Special Concern. Jackrabbits inhabit a variety of habitats, but are most common in relatively open situations and are largely nocturnal. They are expected to occur in the park.
- d. Northwestern San Diego Pocket Mouse (*Perognathus [Chaetodipus] fallax*)
This small rodent is a federal Category 2 Candidate and California Species of Special Concern. This sub-species generally frequents rather open, arid lands. This species prefers coastal sage scrub habitats with moderate to low cover density. San Diego mice were trapped during surveys conducted by LSA in August 1992. Six individuals were captured west of Laguna Canyon Road within one-quarter mile of the south end of Lake No. 2. The captured individuals were trapped near the edge of the mixed coastal sage scrub and in adjacent ecotonal habitat where vegetative cover was relatively sparse. None were trapped in dense annual grassland. This species potentially occurs in association with patches of coastal sage scrub habitat throughout the park.
- e. California Pocket Mouse (*Perognathus [Chaetodipus] californicus femoralis*)
This animal is a federal Category 2 Candidate and a California Species of Special Concern. Among the eight known races of California pocket mouse (*Perognathus [Chaetodipus] californicus*), only P.c. dispar is expected to occur in the area, according to the available literature. However, it is possible that individuals typical of the San Diegan race P.c. femoralis could occur.
- f. Southern Grasshopper Mouse (*Onychomys torridus ramona*)
This southern grasshopper mouse is a federal Category 2 Candidate and a California Species of Special Concern. This territorial predatory mouse has not been observed in the park. It has not been caught in over 2,300 recent trap nights in the San Joaquin Hills.
- g. San Diego Desert Woodrat (*Neotoma lepida intermedia*)
This small woodrat, a federal Category 2 Candidate and California Species of Special Concern, is found in frequently poorly vegetated arid lands, and is especially associated with cactus patches. This species was not located during the August, 1992 trapping study for Laguna Canyon Road, although a closely related species, the dusky-footed woodrat (*Neotoma fuscipes*), was captured. However, the desert woodrat species is likely to occur in coastal sage scrub in the park.

PALEONTOLOGY

Nine geologic formations are exposed within the study area. Of these, eight are known to contain fossils and summarized in Table 2 below. Complete descriptions of these formations are included in the Laguna Coast Wilderness Park Existing Conditions Report.

Table 2-Geologic Time Periods and Rock Units

<u>EPOCH</u>	<u>AGE (years)</u>	<u>ROCK UNIT</u>
<u>Quaternary Period</u>		
Pleistocene	10,000 to 2 Million	Non-Marine Terrace Deposits Marine Terrace Deposits
<u>Tertiary Period</u>		
Pliocene	2 to 5 Million	Niguel Formation
Early Pliocene to Late Miocene	4 to 9 Million	Capistrano Formation
Middle Miocene	9 to 16 Million	Monterey Formation El Modeno Volcanics Topanga Formation San Onofre Breccia
<u>Early Miocene to Oligocene</u>	<u>22 to 30 Million</u>	<u>Vaqueros Sespe Formations</u>

C. CULTURAL RESOURCES

The gentle topography, abundance of water and proximity to Upper Newport Bay made the San Joaquin Hills particularly attractive to the prehistoric people of southern California. Therefore, a large number of archeological sites are found in this area. The San Joaquin Hills contain an abundance of natural resources for food and shelter as well as numerous sandstone caves, popular among prehistoric groups as habitation sites during the winter season.

Laguna Coast Wilderness Park lies within the ethnographic territory of the Gabrielinos. The name Gabrielino is an Americanization of a Spanish word referring to Native Californians living on lands controlled by Mission San Gabriel. Nearby Aliso Creek was the territorial division with the Juanenos an Uto-Aztecanspeaking people related linguistically and culturally to the Gabrielenos. The Gabrielinos spoke an Uto-Aztecans language and may have arrived in the Tustin Plain in 500 B.C. and displaced the earlier Hokan-speaking people related to the Chumash in the Santa Barbara area and the Yumans in San Diego County.

Studies indicate at the time of European contact, the Gabrielinos occupied a number of permanent and semipermanent villages along the coastal and inland valley regions of what is now Los Angeles, Orange and parts of Riverside and San Bernadino counties. Although the

Gabrielino had a complex socio-political organization, their subsistence is characterized by wild plant food foraging, limited hunting in the interior, intensive shell fish gathering, near shore fishing and sea mammal hunting in certain coastal areas.

No specific chronology exists for Laguna Canyon, however, the Newport Bay area has been adequately studied so that a regional coastal prehistory is generally understood. Most archeologists divide the general prehistory of the southern California coastal region into a four stage chronology, based upon changes in artifact assemblages and ecological adaptation.

The earliest potential evidence of human occupation in the region of the study area comes from an Upper Newport site. Radiocarbon dates from this site suggest that native populations were exploiting shellfish beds surrounding the bay as early as 6000 B.C.

By 5500 B.C., numerous prehistoric groups occupied the coastal plains, foothills, and interior valleys of the southern California region. These early inhabitants probably relied on wild seed gathering and shellfish collecting.

By 3000 B.C., some populations within the region exhibited a greater reliance on maritime resources. At this time mortar and pestle artifacts, associated with the processing of acorns, appear in sites. In the Orange County area of the region, this cultural development apparently does not appear until 200 B.C., and then only certain traits are present.

The Late Prehistoric Horizon or Uto-Aztecan Tradition begins approximately A.D. 500. Archeological evidence suggests that several groups entered the southern California region from the southern Great Basin. These groups are believed to have been Uto-Aztecan speakers who, in moving to the coast, separated the indigenous Hokan-speaking groups. The appearance of cremation, small triangular projectile points, steatite containers, bone tools and the use of asphalt marks this cultural period. By A.D. 1000, this period is also identified by smoking pipes and aboriginal pottery.

This latest prehistoric period ended rather abruptly with the Spanish expedition and the establishment of missions and outposts during the 19th century. The Spanish mission system divided the native population into groups based on the similarity of the spoken languages and their proximity to lands controlled by individual Spanish missions. Mission San Gabriel Archangel and Mission San Juan Capistrano are the closest missions to the project area. In the late 18th century, the project area was part of the Mission San Juan Capistrano grazing land.

Following secularization in 1835, Jose Sepulveda secured the Rancho San Joaquin in 1837 in a Mexican land grant. The Laguna Coast Wilderness Park is within the old Rancho boundaries. James Irvine, in partnership with three other men, purchased the Rancho in 1864. Cattle ranching persisted on the property until the present.

The study area has a long history of archeological research primarily conducted through surveys beginning with the WPA in the thirties. Within the project area, 100 prehistoric sites

NOTE:

In order to protect cultural sites, this confidential map is on-file with the County of Orange Historical Facilities Office.



LAGUNA COAST WILDERNESS PARK

County of Orange
Public Facilities & Resources Department
Harbors, Beaches and Parks

ARCHAEOLOGY
Exhibit 7
CONFIDENTIAL DATA

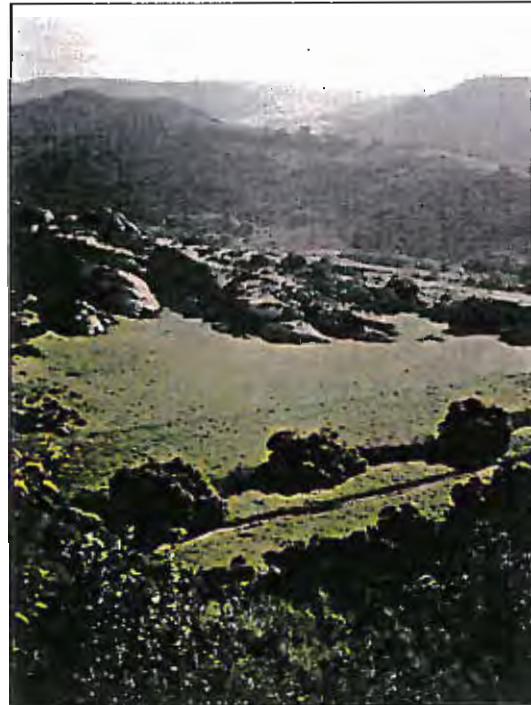
and one isolate have been identified by records search (see Exhibit 7). No historic sites have been recorded within the project area, although historic sites are certainly present. The National Register of Historic Places, the California State Historic Resources Inventory and the listing of California Historic Landmarks list no properties within the subject area.

A total of fifty surveys and/or excavations have been conducted within the study area.

D. RESOURCE MANAGEMENT ZONES

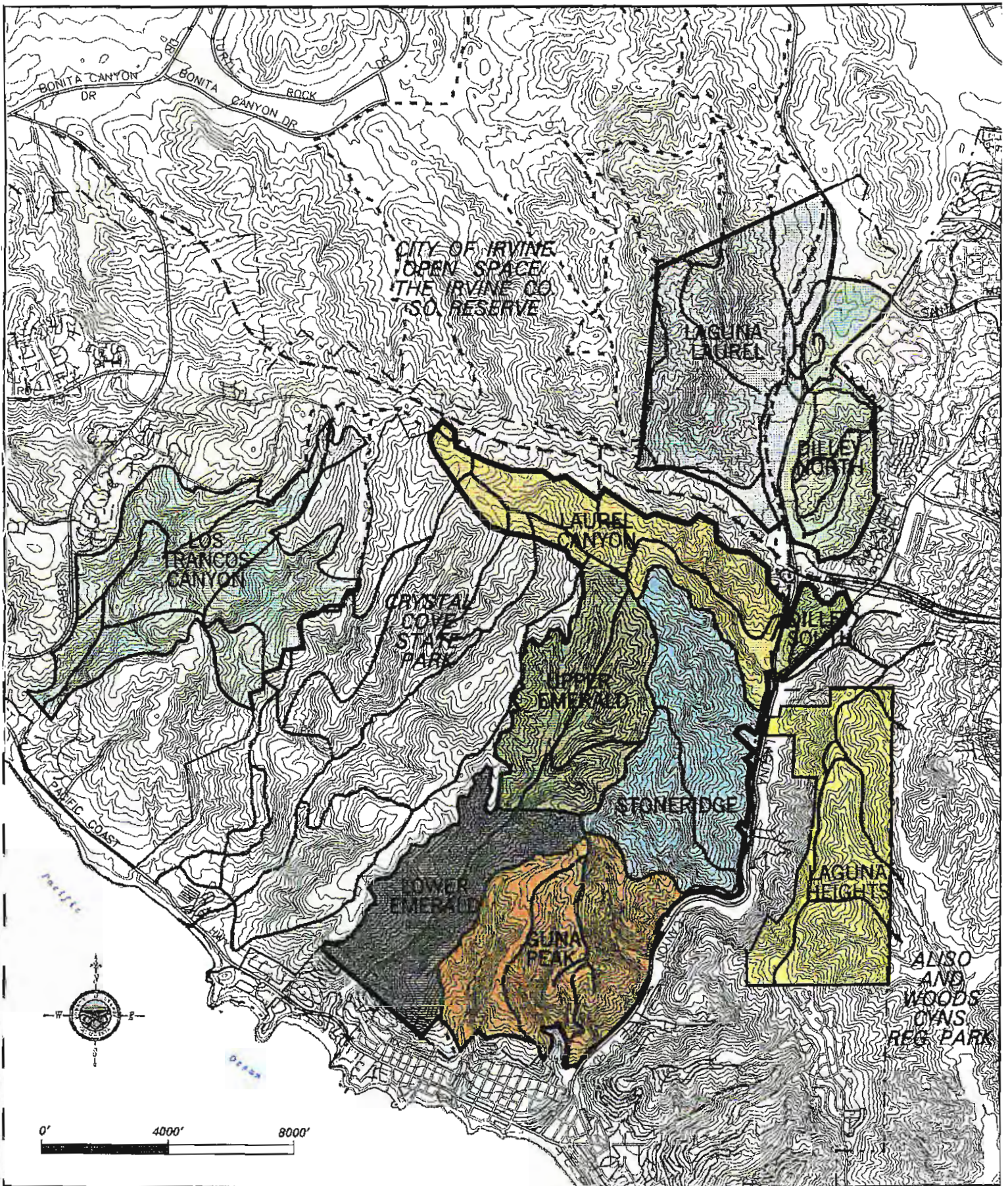
To assist land managers and park personnel in identifying general locations of LCWP, ten resource management zones have been created (see Exhibit 8) as follows:

- **Laguna Laurel** (west side of Laguna Canyon Road north of Toll Road)
- **Dilley North** (James Dilley Preserve, east of Laguna Canyon Rd., north of Toll Rd.)
- **Dilley South** (James Dilley Preserve, east of Laguna Canyon Rd., south of Toll Rd.)
- **Laurel Canyon** (State Ecological Preserve and upper Laurel Canyon)
- **Stoneridge** (east-facing slopes along Laguna Canyon Road from Big Bend north to Willow Canyon)
- **Upper Emerald** (northern portion of Emerald Canyon)
- **Lower Emerald** (southern portion of Emerald Canyon)
- **Guna Peak** (Boat Canyon, Guna Peak, hills west of Laguna Canyon Rd. north of Irvine Bowl to Big Bend)
- **Los Trancos Canyon** (Los Trancos Canyon and tributaries)
- **Laguna Heights** (north of Alta Laguna Park along the east ridge above Laguna Canyon Road)



Laurel Canyon Zone

The resource management zones will allow for common referencing of geographic locations for all resource management activities (i.e. scientific surveys, exotic plant control, monitoring reports, etc.).



LAGUNA COAST WILDERNESS PARK

COUNTY OF ORANGE
PUBLIC FACILITIES and RESOURCES DEPARTMENT
HARBORS, BEACHES AND PARKS

RESOURCE MANAGEMENT ZONES
Exhibit 8

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IV. GOALS AND OBJECTIVES

IV. GOALS AND OBJECTIVES

A. GENERAL DEVELOPMENT PLAN GOALS AND OBJECTIVES

Through a series of community "Taking Part" workshops, goals for park planning and management were developed as consensus items. With a mission of providing people with wilderness-type recreational and educational experiences while protecting, restoring and enhancing park natural resources, the consensus items (or goals) will direct future activities for the park, the ultimate park design and strategies for park management.



Laguna Lake No. 3 - view from top of buried water tank

Laguna Lakes

Restore through re-unification, the three Laguna Lakes. Plan and coordinate the enhancement of the Laguna Lakes area with the preferred re-alignment of Laguna Canyon Road.

Access

1. Primary and secondary access points
 - a. There will be three major access points located at Little Sycamore Canyon, Sand Canyon Road and Bommer Canyon. (NOTE: Sand Canyon Road and Bommer Canyon staging areas are not part of this park plan at the request of the Irvine City Council.)
 - b. Provide a variety of access points at the perimeter of the park of varying character and size dependent upon the uses, users and facilities planned for that area.
 - c. Provide major access points with smaller ones in more sensitive areas.
 - d. Provide opportunities for limited low impact and seasonal group camping by special permit or arrangement. Supervised youth and educational/nature study program groups will be the focus of the facilities. No camping would be planned in environmentally sensitive areas.
2. Roadways, staging areas and trails
 - a. Provide a diversity of trail types: hiking, equestrian, and mountain cycling. Specific trail uses will be specified in the park plan.
 - b. Provide trails that accommodate the intended user group with a variety of challenge levels including those for the physically challenged.
 - c. Keep the character of trails as rustic as possible while accommodating uses.
 - d. Provide trail markers and signage indicating appropriate use and user groups.
 - e. Keep parking to a minimum and design parking in a character consistent with the type of uses planned for an area.
 - f. Accommodate the use of public transportation, shuttles and off-site parking areas in the planning of access points.
 - g. Limit the use of existing fire and service roads within the park to service vehicles. Abandon or reclaim unused roads for other park uses.
 - h. Plan and enhance existing trails and paths in a manner that reduces impact on the natural terrain, wildlife and plant habitat, while providing a greater sense of continuity that unifies the park.

Sensitive Areas and Special Use Areas

1. Provide controlled access to areas containing sensitive wildlife and vegetation.
2. Provide special areas for camping, docent-led tours, hiking, equestrian use, mountain cycling, natural history, archaeological field work, and other special uses.

Park Edges/Image and Continuity

Plan the edges of the park in a manner that will support a positive image of a wilderness park from within the park looking outward and from the greater context inward. Use native plantings of trees and lower chaparral to screen out bad views and perimeter developments.

Education

Provide educational opportunities and programs for all ages and user groups with special emphasis on young children. Educational efforts will be near trail heads and access points and emphasize the park's uniqueness, sensitivity and appropriate behavior for visiting the wilderness park.



Docent-led tour in Little Sycamore Canyon

Management

1. Provide a management program that will enable the Coastal Greenbelt Authority to manage the park in a manner that protects and interprets the natural resources in the park.
2. Maintain the Coastal Greenbelt Authority as the organization to which citizens and special interest groups can voice their concerns with the opportunity for special task forces to be established to look at special issues.

San Joaquin Hills Transportation Corridor (SJHTC)

(Author's note: The following GDP goals for the SJHTC were developed in 1994, prior to the construction of the SJHTC.)

1. There was unanimous agreement by the GDP workshop participants that the SJHTC should not pass through the Laguna Coast Wilderness Park.
2. It was also agreed that if the corridor becomes an inevitable reality, then everything possible should be done to affect and mitigate the aesthetic and environmental impacts that it will have on the Laguna Coast Wilderness Park. People felt that the SJHTC should be redesigned to accomplish these goals.

Interpretive Center

1. All groups agreed the park interpretive center should include a ranger office, docent office, information/interpretive center, restrooms, and limited parking.
2. There was also general consensus that an outdoor amphitheater, a viewing platform, an assembly area and signage area are appropriate for this facility.
3. There was general agreement among all groups that the facility should be small and simple with an indoor/outdoor character. Natural materials such as plantings, decomposed granite and stone should be used as appropriate. The overriding concern is that the facility "fit" within its environmental context and that as little site disturbance as possible take place.

B. RESOURCE MANAGEMENT PLAN GOALS AND OBJECTIVES

Goal 1. Balance Access and Habitat Conservation

Balance the need to allow public access for recreation and interpretation with protection, enhancement and restoration activities.

Goal 2. Access, Recreation and Interpretation

Provide public access for recreation and interpretation.

Objectives

- 2.1 Permit public access and "passive" recreational uses within the wilderness park by providing staging areas and trails in areas where target species and sensitive habitats will not be adversely impacted.
- 2.2 Establish an educational program for park users of all ages, including docent-led tours, information and literature, signage and public outreach to emphasize interpretation as a management tool.
- 2.3 Develop an interpretive program to describe the various ecosystems found within the park, particularly coastal sage scrub and the target species.
- 2.4 Provide trail markers and signage indicating appropriate use, behavior and user groups.
- 2.5 Prepare interpretive materials to inform the public of potential health and safety hazards in the park.
- 2.6 Involve the public in resource inventory and management activities.

Goal 3. Monitoring and Management of Infrastructure

Monitor ongoing use and maintenance of trails and staging areas within the wilderness park to maintain a wilderness character and to assure that overuse for recreation does not create negative impacts on target species or sensitive habitat.

Objectives

- 3.1 Restrict public access in areas that are unsafe for users due to conflicts with wildlife, degraded site conditions or where it is necessary to minimize impacts to sensitive habitat.
- 3.2 Effectively manage recreational use by increasing enforcement capabilities.
- 3.3 Establish buffer and urban interface conditions for the park and adjacent development.
- 3.4 Abandon or underground overhead utility lines.

Goal 4. Biological Resource Protection, Enhancement and Restoration

Develop a long-term multiple-species and habitat protection, enhancement and restoration plan consistent with NCCP/HCP that focuses on coastal sage scrub habitat and the target species.

Objectives

- 4.1 Improve biological productivity and diversity through protection, enhancement and restoration activities that are consistent with the adaptive management strategy of the NCCP/HCP.
- 4.2 Evaluate habitat areas to determine their conservation value using criteria established in NCCP/HCP. Conservation value is the potential contribution habitat areas could make to the long-term viability of target species and to overall reserve design.
- 4.3 Prioritize restoration and enhancement activities to ensure activities which make a positive contribution to long-term reserve function and habitat values are undertaken first.
- 4.4 Perform active management enhancement and restoration activities as needed to maintain the health of the park's ecosystem.
- 4.5 Maintain wildlife corridors to protect the natural movement of wildlife.
- 4.6 Protect and manage plant communities that provide habitat to park wildlife.
- 4.7 Coordinate potential mitigation bank sites in conjunction with park development projects.
- 4.8 Establish water management, retention and enhancement areas.



Mule Deer

Goal 5. Monitoring and Adaptive Management

Monitor enhancement and restoration activities as part of the adaptive management program to evaluate effectiveness and progress. Through monitoring, seek to identify new enhancement and restoration opportunities and priorities within the reserve.

Objectives

- 5.1 Identify compatible and incompatible activities/uses in relation to species protection and survival, and the ability to effectively implement specified habitat management, restoration and enhancement measures.
- 5.2 Conduct direct monitoring of the "target and identified species" and the coastal sage scrub community to determine how well the NCCP/HCP adaptive management program is addressing the goal of maintaining long-term net habitat value of CSS habitat within the park
- 5.3 Include an inventory of target species, identified species, and special interest species in the monitoring plan.
- 5.4 Except for identified monitoring and inventory tasks, utilize passive management for biological resources except where there is a need to control invasive species, or restoration and enhancement opportunities are not available.
- 5.5 Monitor management activities to directly assess the efficacy in meeting overall resource management plan goals.

Goal 6. Fire management

Develop short and long-term fire management plans to maintain the maximum effectiveness of the coastal sage scrub management program consistent with the NCCP/HCP.

Goal 7. Cultural and Paleontological Resource Protection, Enhancement and Restoration

Develop and maintain a cultural resource inventory of all cultural and scientific resources within the park. Develop a long-term cultural and scientific resources protection and enhancement plan, consistent with the standards of the Society of Professional Archaeologists and Section 106 of the National Historic Preservation Act (for Cultural Resources) and the Standard Measures for Assessment and Mitigation of Adverse Impacts to Nonrenewable Paleontological Resources of the Society of Vertebrate Paleontology (1991), with a primary focus on preservation of these resources. Where preservation is not a viable alternative, testing will be conducted. This will be followed by data recovery at the California Register of Historic Places eligible sites.

Objectives

- 7.1 Locate and map all cultural resource (archeological and historical) sites. Whenever possible, preserve the site.
- 7.2 Maintain confidentiality for all records of cultural or paleontological site locations.
- 7.3 Avoid siting park facilities and improvements on or near cultural or paleontological resources.
- 7.4 Develop a detailed geologic map of the park and identify significant paleontological sites on this map. Where feasible, develop measured sections of geologic units showing fossiliferous horizons.

Goal 8. Operations and Maintenance

Minimize the impacts of ongoing operations and maintenance on the park's resources.

Objectives

- 8.1 Perform routine operation and maintenance activities as directed by the policies contained in the NCCP/HCP.
- 8.2 Dove-tail Resource Management Plan objectives with the Laguna Coast Wilderness Park interim operations plan and policy plan for hikers, cyclists and equestrian access.
- 8.3 Establish "resting" schedules for park areas and coordinate with park monitoring and trail use.

Goal 9. Interim Management

Implement interim management policies established by the NCCP/HCP and the Laguna Coast Wilderness Park Interim Operations Plan in coordination with responsible agencies, such as the Nature Conservancy, and with concurrent planning efforts, such as Laguna Canyon Road improvements, the toll road and the Laguna Lakes Enhancement Plan.

Goal 10. Geological Resources Protection

Develop a geological resource inventory and monitoring program including appropriate measures to protect these important resources.



V. PUBLIC ACCESS AND RECREATION

V. PUBLIC ACCESS & RECREATION PLAN

A. EXISTING PARK ACCESS

Historic Public Access

Historically, public access in the San Joaquin Hills has only occurred illegally, by trespassers. With the opening of Crystal Cove State Park in 1984, hikers, mountain cyclists and equestrians legally accessed the coastal backcountry for the first time. In 1993, the County of Orange Harbors, Beaches & Parks, The Nature Conservancy, The Irvine Company and the Laguna Greenbelt, Inc. began working together to provide increased public access opportunities through docent-led hiking, mountain cycling and equestrian tours in



Interim Park Headquarters at Willow Canyon

Laguna Coast Wilderness Park and The Irvine Company Open Space Reserve (see Appendix C). Public interest in the coastal areas of the San Joaquin Hills has increased in proportion to increased access and resulted in over 200 trained volunteers working as docents, ranger reserves and Adopt-A-Park volunteers.

Docent-led Tours

Docent-led tours for hikers, equestrians and mountain cyclists are currently available for park users (see Appendix B). Hikers and mountain cyclists meet at the Willow Canyon interim park headquarters, south of the El Toro Road intersection on the west side of Laguna Canyon Road. Equestrians stage at the Big Bend area located 3/4 mile south of Willow Canyon on the west side of Laguna Canyon Road.

Wilderness Access Permits

In 1996, the Wilderness Access program was developed by The Nature Conservancy, the Laguna Greenbelt and the County of Orange Harbors, Beaches & Parks. The program was designed to increase the level of public access in Laguna Coast Wilderness Park without impacting plants and wildlife. This is accomplished by educating park visitors about the ecological significance of the San Joaquin Hills, involving volunteers in the management of the Wilderness Access program and monitoring impacts on plants and wildlife.

Participants in docent-led hiking, mountain cycling or equestrian tours are eligible to receive a Wilderness Access permit (see Appendix I). Initially, only 100 permits (and a maximum of four visitors per permit) are issued for each Wilderness Access day. The permits are only valid on the day they are issued. Wilderness Access days have been offered once a month on a trial basis since 1996.

B. PARK USES

Wilderness Park Definition

Proposed uses within Laguna Coast Wilderness Park will remain consistent with the County definition of a wilderness park, which is contained in the Recreation Element of the County's Master Plan:

"Wilderness Regional Parks: A regional park in which land retains its primeval character with minimal improvements and which is managed and protected to preserve natural processes. The park (1) generally appears to have been affected primarily by forces of nature, with the imprint of man's work substantially unnoticeable; (2) has outstanding opportunities for solitude or a primitive and unconfined type of recreation; (3) is of sufficient size as to make practicable its preservation and use in an unimpaired condition; and (4) may also contain ecological, geological, or other features of scientific, educational, scenic or historical value. In essence, park uses envisioned will result in minimal impact to existing park resources and are compatible with a wilderness experience."

Interpretation, education, picnicking, limited group and individual camping (at Crystal Cove State Park), trail use and general sensory experiences of a wilderness area are the anticipated uses by the general public. These uses will be restricted to fairly well defined areas with off-trail encroachment into heavily vegetated and sensitive resource areas prohibited.

Interpretation and Education

Park interpretation and education is critical to ensure public recreation is compatible with the protection of the park's resources. See Section VI Public Outreach and Education Program for a complete description of these programs.

Picnic Facilities

Picnic facilities are planned for three areas within LCWP. The Little Sycamore Canyon staging area will accommodate group and individual picnicking near the existing native sycamore trees adjacent to the park entry gate. Functioning as a key trailhead, this picnic area will include picnic tables, a drinking fountain, parking, an equestrian hitching post and information kiosk.

The Laurel Canyon staging area functions as a trailhead and interpretive opportunity. Picnicking will be accommodated with picnic tables, a restroom, drinking fountain, interpretive kiosk/information station, parking (under the existing walnut grove) and equestrian hitching post.

Picnic opportunities at the Crystal Cove State Park staging area will be limited to the capacity of existing facilities including parking, restrooms, park headquarters, information kiosk and trail access. Currently there are no picnic tables or barbecues at the headquarters site. Picnic areas are currently available in the coastal areas of Crystal Cove State Park.

Camping

Historically, camping has been offered at Crystal Cove State Park. Both State Park and County of Orange staff have indicated there has not historically been great demand for camping in the County. While this may be true, participants in the General Development Plan workshop felt there was a strong need to provide some limited camping within the planning area of Laguna Coast Wilderness Park. Hike-in and equestrian camping will continue to be offered at Moro Canyon in Crystal Cove State Park.

C. PROPOSED PARK ACCESS

The unique character and special attributes of Laguna Coast Wilderness Park will draw park users from throughout the Southern California region. Four neighboring areas which may yield frequent park visitors include the Irvine region, the Newport Beach region, the Laguna Beach region, and the Laguna Hills/Misson Viejo/Aliso Viejo region.

Two existing points of park access at Crystal Cove State Park and the Equestrian Staging area near Big Bend off Laguna Canyon Road will accommodate a variety of recreational uses and local as well as regional park users. Three other key points of park access are proposed to be developed due to their character, location and level of service: Little Sycamore Canyon; Laurel Canyon; and the Irvine Bowl area. In addition to these existing and proposed staging areas, access into the park will be available on existing trails located adjacent to residential areas north of Laguna Beach and at Top of the World.

In addition to the above mentioned staging areas, there are two existing staging areas along Laguna Canyon Road. One is at Willow Canyon just south of the El Toro Road and Laguna Canyon road intersection, and the other is the Sycamore Hills staging area in the James Dilley Preserve area on the east side of Laguna Canyon Road north of the SJHTC interchange.

Once the Laurel Canyon Staging Area is completed, the Willow Canyon Staging Area will be removed and revegetated with native plants.

The James Dilley Staging Area is proposed to remain as permanent access to the Laguna Coast Wilderness Park (see Exhibit 11)- James Dilley Staging Area.

The Laguna Coast Wilderness Park GDP originally included within its planning boundaries existing and proposed lands in the City of Irvine. However, at the October 22, 1996 Irvine City Council meeting, the City Council voted to retain ownership and control of park master planning for all City lands within the Laguna Coast Wilderness Park project including the proposed park areas at Sand Canyon and Bommer Canyon.

The draft Laguna Coast Wilderness Park GDP and this RMP have been revised to reflect this request by the City of Irvine. City of Irvine existing and proposed lands are not considered within the Laguna Coast Wilderness Park GDP or this RMP.

CIRCULATION

To maintain a wilderness experience and limit impacts on the park's natural resources, automobiles will be limited to staging areas at the park's perimeter. Freeways, arterial highways and local roads provide vehicular access to the park perimeter. In addition, to limit the impact of automobile and bus traffic and parking for special events, the use of shuttle vehicles should be explored. In the park interior, hiking, horseback riding, mountain biking and road biking will be accommodated.

ROADS

The San Diego Freeway (I-405) provides park access at off-ramps at Laguna Canyon Road. .

1. Eastern Edge -- The eastern edge of the park is served by primary arterials Laguna Canyon Road and El Toro Road. A series of proposed arterial extensions along the eastern edge of the park including Bake Parkway, Lake Forest Drive, Ridge Route Drive, Santa Maria and Aliso Creek Road may potentially increase park access. The San Joaquin Hills Transportation Corridor also provides increased access to the park at Laguna Canyon Road and Bonita Canyon Road.
2. Southern Edge-- Pacific Coast Highway forms a portion of the southern boundary of the park study area at Crystal Cove State Park where the southern-most park staging area is proposed.
3. Western Edge-- Access along the park's western edge is limited to one location at a view park on the western side of Los Trancos Canyon with access from Newport Coast Drive.
4. Park Roads-- Roads in the park's interior will be limited to existing truck trails and emergency and maintenance vehicle roads. The existing roads and trails will be used for utility access, emergency access, park maintenance, surveillance, fire protection and by park users. Public auto use will be limited to the perimeter staging areas.

TRAILS

The most important recreational opportunity proposed within the Laguna Coast Wilderness Park is expected to be trail use. The wilderness quality of the park's rich and vast resources can be thoroughly enjoyed by park visitors hiking, bird watching, exercising, cycling and riding horses on park trails. Over 42 miles of hiking, cycling and equestrian trails are proposed within the park. 92% of the trails occur on pre-existing hiking trails and roads.

A primary mandate of NCCP/HCP is protection of sensitive resources. Well managed and controlled park access and trail use will afford recreational opportunities compatible with protected and preserved natural resources.

LEGEND

- Multi-Use Trails on Existing Trails
- Hiking and Mountain Bike Trails on Existing Trails
- Hiking-Only Trails on Existing Trails
- Existing Laguna Canyon Road to be Removed
- Multi-Use Trails: To be constructed
- Proposed Laguna Canyon Road Alignment
- Existing Truck Trails
- Trail/Wildlife Undercrossing
- Little Sycamore Cyn. Staging Area
- Laurel Canyon Staging Area
- James Dilley Staging Area
- Equestrian Staging Area - Big Bend
- Crystal Cove State Park Staging Area Existing Facilities
- Irvine Bowl Pedestrian Access Gate
- View Point

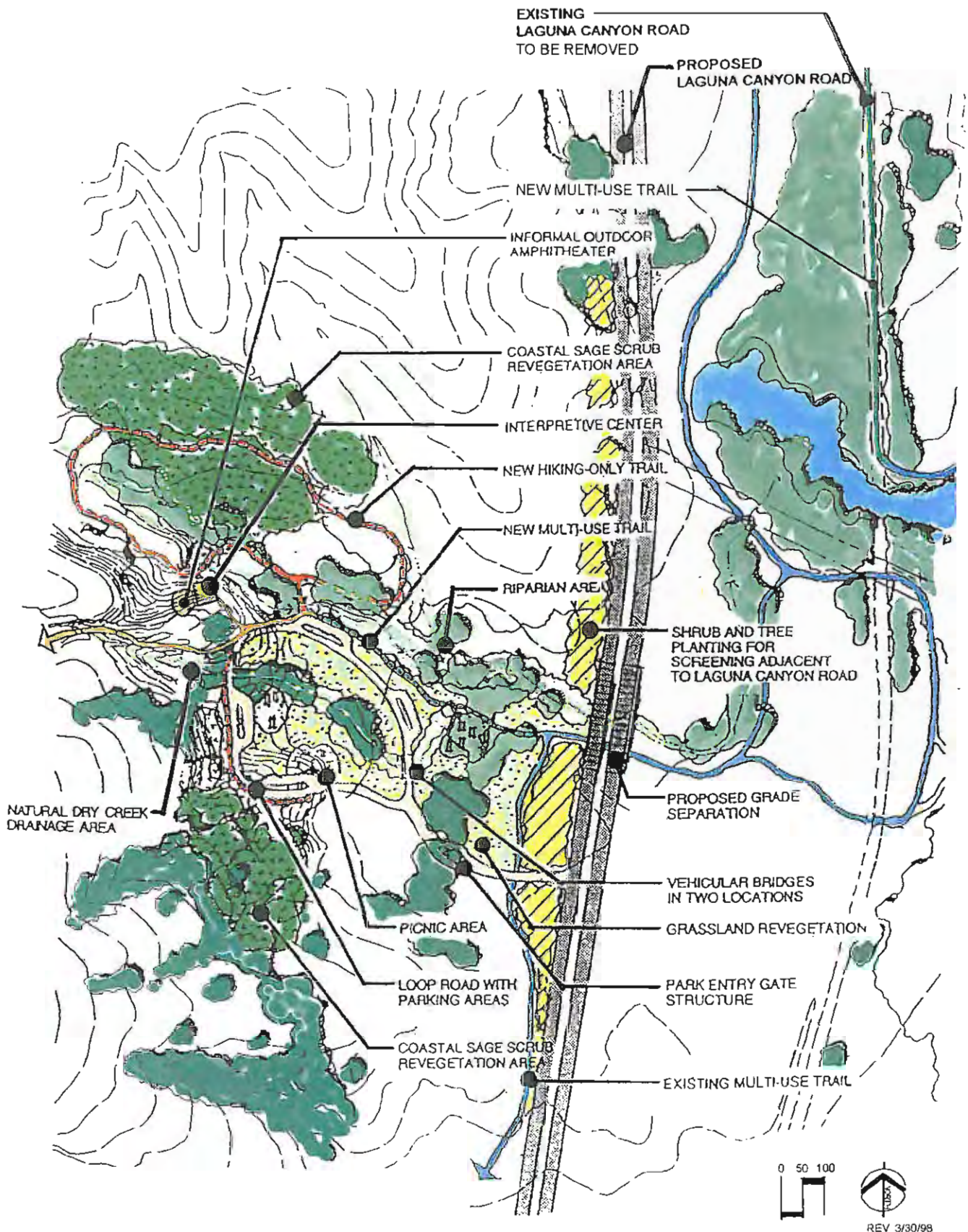
AREA DESIGNATIONS

- Existing Laguna Coast Wilderness Park
- Future Laguna Coast Wilderness Park
- City of Irvine Open Space
- Crystal Cove State Park
- NCCP Prohibited Access Area
- Aliso and Wood Cyns. Wilderness Park
- Future Residential Development



LAGUNA COAST WILDERNESS PARK
 COUNTY OF ORANGE
 PUBLIC FACILITIES and RESOURCES DEPARTMENT
 HARBORS, BEACHES AND PARKS • LANDSCAPE ARCHITECTURE

GENERAL DEVELOPMENT PLAN
 Exhibit 9



REV 3/30/98



LAGUNA COAST WILDERNESS PARK
 County of Orange
 Public Facilities & Resources Department
 Harbors, Beaches and Parks

LITTLE SYCAMORE CYN.
 STAGING AREA
 Exhibit 10

Four parking areas, located along the loop road, will be screened with berms and plants. Parking areas and picnic facilities will act as trail heads to support trail users including mountain cyclists, equestrians and hikers. The Laguna Lakes are located directly across Laguna Canyon Road from Little Sycamore Canyon. The Lakes will be accessible via a proposed trail underpass beneath the realigned Laguna Canyon Road.

The park interpretive center will be accessed via a multi-use trail winding through groves of trees and indigenous plants. It will be sensitively integrated into the slope of a small knoll at the mouth of the canyon. The north side of the building is proposed to have large expanses of glass revealing majestic views up Little Sycamore Canyon. The two story building of approximately 3,000 square feet will include an interpretive center display area, office space for ranger staff, a resource management office, restrooms and audio visual capabilities. The building will be constructed of materials that blend naturally into the site.

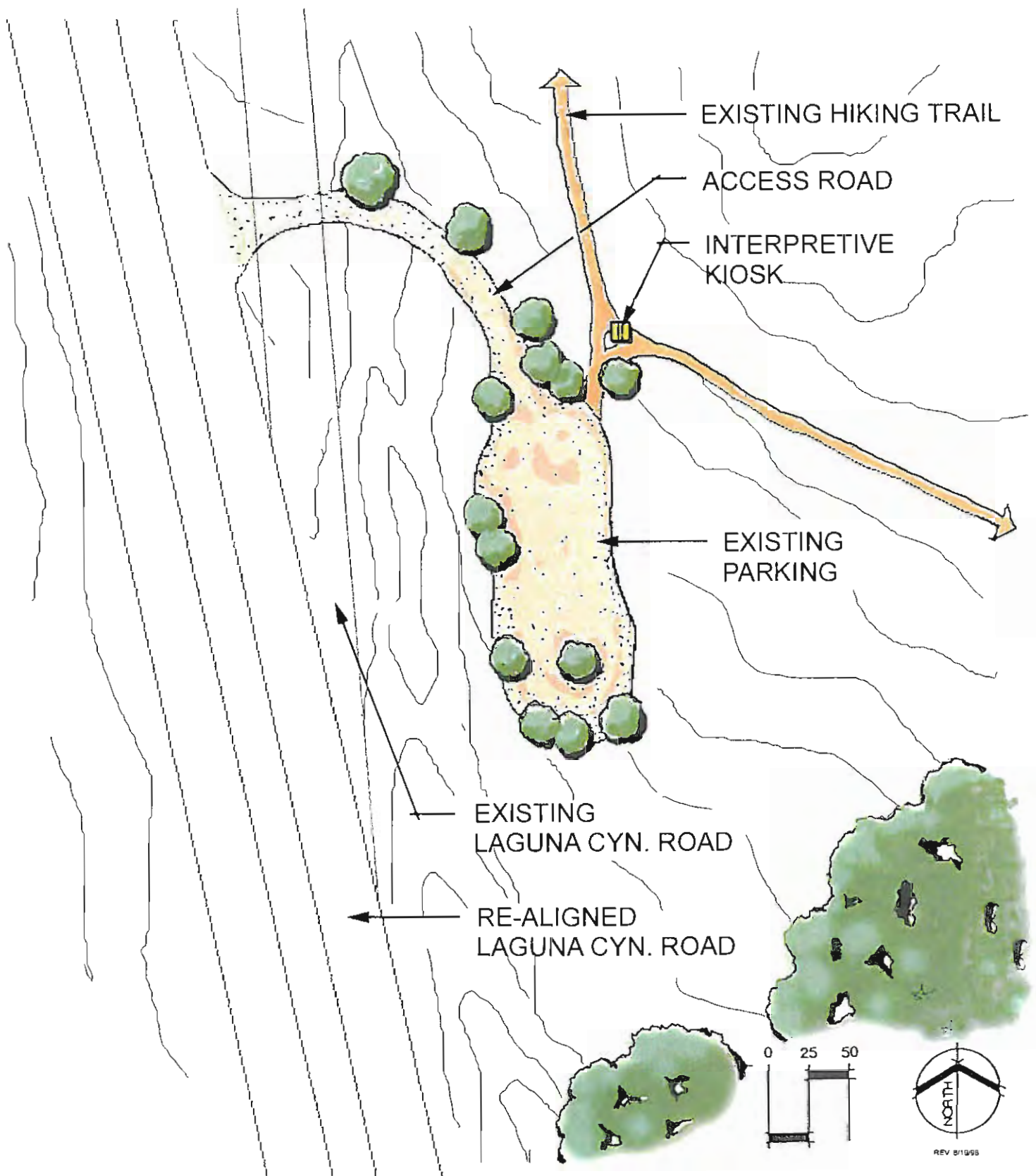
An informal outdoor amphitheater for presentations and campfires will be sculpted within a nearby natural bowl. The amphitheater will act as a trail head for nature walks and docent-led tours up Little Sycamore Canyon and to the Laguna Lakes. A biologist has evaluated the impact of the proposed facilities on existing plant materials in Little Sycamore Canyon. The access road to the staging area is located in the annual grassland in the bottom of the canyon. The proposed parking areas are located in needlegrass and annual grassland. The first parking lot is located in a natural opening in the coastal sage scrub.

The proposed picnic site will be located within a sycamore woodland with an annual grassland understory. The proposed trail system extending between the picnic site and the interpretive center is located in annual and needlegrass grassland, coastal sage scrub, mulefat scrub and sycamore woodland vegetation.

The interpretive center knoll contains needlegrass grassland characterized by a cover of purple needlegrass along with a mix of annual grasses and forbs. Some areas of scrub oak chaparral, annual grassland and sage scrub-grassland ecotone also exist on this knoll. The proposed amphitheater site contains a mixed sage scrub community currently dominated by lax-flowered bushmallow.

Sensitive resources potentially affected by the location of facilities in Little Sycamore Canyon include needlegrass grassland, coastal sage scrub, riparian scrub and southern sycamore riparian woodland. A single prostrate spineflower was observed at the interpretive center site. A population of the intermediate mariposa lily was located near the western end of the proposed access road. As with all staging areas, the Little Sycamore staging area will be designed to minimize disruption of these sensitive resources.

Significant interpretive programs are envisioned for this specific site including programs that explore the nearby vegetative communities and associated wildlife such as the coastal sage scrub community, the oak woodland and chaparral communities located higher-up in Little Sycamore Canyon, and the riparian corridor associated with the Little Sycamore Canyon watershed and the Laguna Lakes.



2. James Dilley Staging Area

The James Dilley Staging Area is an existing access point located on the east side of Laguna Canyon Road, about 1/8 mile north of the SJHTC interchange. This staging area provides access to the James Dilley Preserve portion of the park, and the Laguna Lakes.

A new access road off Laguna Canyon Road is proposed to be constructed as part of the Laguna Canyon Road realignment and widening project (see Exhibit 11). For safety purposes, vehicular access to this staging area will be limited to right-in and right-out turns. Other proposed improvements include interpretive and directional signage, as well as an interpretive kiosk.

2. Laurel Canyon Staging Area

Laurel Canyon contains some of the park's most significant biological and cultural resources. Within this area, the California State Department of Fish and Game has ownership of approximately 82 acres classified as an ecological preserve. Significant resources in the canyon include the Laguna Beach dudleya, riparian habitat, and many significant archeological and paleontological resources.

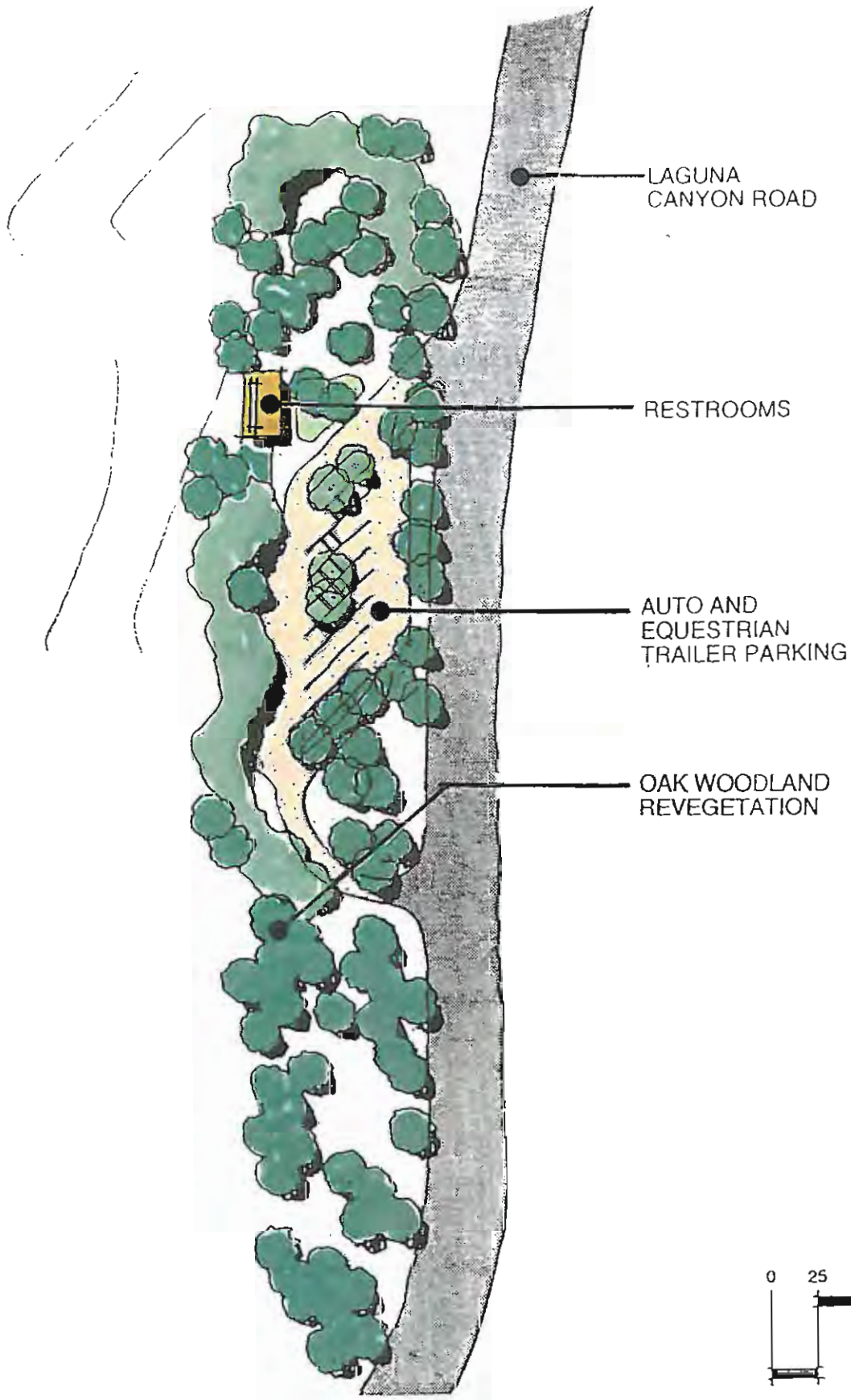
The access road from Laguna Canyon Road to the staging area (see Exhibit 12) will be located as far north as possible from the Laguna Canyon Road/El Toro Road intersection without encroaching into the wetlands area north of the staging area. For safety reasons, only right turns in and out of this drive will be allowed.

The Laurel Canyon staging area will include a parking area for approximately 50 cars located in an old English walnut grove. The parking facility will be composed of natural materials such as decomposed granite. Other facilities will include a picnic area under the canopy of native trees, drinking fountain, interpretive and directional signage, restrooms and natural bridge crossings at existing creeks and drainage courses.

While Laurel Canyon is limited to hiking only, the staging area would provide staging and trail access for mountain cyclists and equestrians. All trails would utilize existing trails and truck roads with minimal new trail development to provide necessary linkages to:

- The staging area to the south (at Big Bend).
- A major crossroads of trails at the top of Laurel Canyon.
- Hiking-only access to the James Dilley Preserve with multi-use access to the future Aliso and Wood Canyons staging area along El Toro Road.
- A multi-use trail along Laguna Canyon that travels north to Little Sycamore Canyon.

The Laurel Canyon staging area site contains a ruderal grassland with some elements of an alkaline meadow community including curly dock, tall umbrella sedge and western verbena. The pasture to the west of the staging area site contains an annual grassland of ripgut brome wild oat, soft chess, western ragweed and summer mustard.



LAGUNA COAST WILDERNESS PARK

County of Orange
 Public Facilities & Resources Department
 Harbors, Beaches and Parks

BIG BEND
 STAGING AREA
 EXHIBIT 13

D. PARK ADMINISTRATION, MANAGEMENT AND OPERATIONS

Operations

1. Park Hours

Park hours will be 7:00 a.m to sunset. Closure of trails and roads for a period of time may occur following heavy rains or when fire officials request closure due to fire danger.

2. Special Permits

Special permits will be issued by the Park Ranger's office for organized groups, i.e. school groups for educational purposes, research by authorized individuals or groups and fund raising efforts. Special permits will be issued in accordance with Section 7.0 PFRD Policy 7.1.401.

3. Prohibited Activities

Prohibited uses within the park include any activity that results in loss or degradation of park resources and facilities. Artifact, plant and animal collecting is prohibited (OCCO 2-5-27; 2-5-38). Other prohibited activities include:

- Motorized vehicles--Operation of motorized vehicles within the Park beyond the designated roads of the staging areas is prohibited except for park management, maintenance, police and fire service, by easement or special permit.
- Boating--Public boating is not permitted except access to the lakes for management, maintenance, police and fire services, by easement or special permit.
- Cattle grazing.
- Swimming and wading
- Domestic animals.

Administration and Management

Park administration and management will be the responsibility of the County of Orange, Public Facilities & Resources Department, Harbors, Beaches & Parks, Regional Parks Operation staff.

1. Permanent staffing for the park at build-out is recommended in the GDP to include:

- Senior Park Ranger (1 person)
- Park Ranger II (1 person)
- Inmate Supervisor (1 person)
- Groundskeepers (2 people)
- Office Technician (1 person)

The Senior Park Ranger will coordinate all administrative services including budget preparation, purchase requests, work requests, contract services, maintenance projects, park amenities inventory, reports, coordination of environmental studies and development of

interpretive programs. The inmate supervisor will be a key staff person in accomplishing resource management and maintenance projects in the park. This position can coordinate CWP workers, jail crews as well as volunteers.

In addition, the creation of a new full-time staff position for a Natural Resources Specialist is recommended and described fully below.

2. Park Headquarters

The Laguna Coast Wilderness Park headquarters will be located at the interpretive center at Little Sycamore Canyon Staging Area. In advance of construction of the interpretive center, an interim park headquarters has been established at Willow Canyon, south of the intersection of El Toro Canyon Road and Laguna Canyon Road on the west side of Laguna Canyon Road. A trailer currently functions as an interim headquarters for staff and docents and includes a small interpretive center. A small picnic area has been established adjacent to park headquarters. Equestrians stage at the Big Bend staging area located 3/4 mile south of Willow Canyon on the west side of Laguna Canyon Road.

Resource Protection

The most important activity of park staff is resource protection. County park rangers will work cooperatively with the Nature Conservancy and the Irvine Company, California Fish and Game, and other resource agencies. In order to effectively manage the resources of all wilderness and natural parks in the County system a new full-time Natural Resources Specialist is recommended to be responsible for overseeing and implementing the recommendations and guidelines of all Resource Management Plans for County of Orange parks.

For all County of Orange parks, the Natural Resources Specialist will:

- Have detailed knowledge of park resources, goals and objectives,
- Review all habitat enhancement plans and specifications to ensure conformance with NCCP/HCP, park goals and objectives and the park's RMP,
- Review all monitoring reports and
- Oversee all maintenance activities performed by maintenance personnel.

Budget

Appropriations for park operations are incorporated in the Harbors, Beaches & Parks Regional Park Operations section of the County of Orange budget, with funding from Harbors, Beaches and Parks County Service Area No. 26.

Law Enforcement

Applicable local, state, and federal laws and/or ordinances pertaining to the protection and use of the park, whether originating at the local, regional, state or federal level will be in effect and enforced.

At this time, County park rangers do not have law enforcement authority. They rely on the County Sheriff and local city police. Park rangers call for law enforcement back-up using the CONTROL ONE dispatch system. Rangers report violations to the dispatcher via radio.

E. RECOMMENDATIONS

General public access

1. The need to allow public access for recreation and interpretation shall be balanced with protection, enhancement and restoration activities. Public access is a primary focus of the Laguna Coast Wilderness Park General Development Plan, but protection of resources is essential to maintain and improve the wilderness quality of the park.



2. Staging areas, trails and other future park improvements shall be sited to avoid encroachment into sensitive habitats such as riparian areas, nesting areas and wetlands. Improvements shall not be constructed in areas where target species will be adversely impacted.
3. Park operations and public use shall be restricted when necessary to minimize impacts to sensitive habitat, to prevent user conflicts with wildlife and where degraded site conditions impact user safety.
4. Unauthorized trails or public use areas shall be closed by distributing leaf litter, providing stone or plant barriers, or by erecting temporary barbed-wire fencing.
5. Signage should be routinely evaluated for effectiveness and revised, as necessary.
6. Methods and objectives for monitoring the effects of recreational use on sensitive species and natural processes within the park shall be developed, tested, implemented and evaluated.
7. Perimeter park control gates shall be placed at all park access points and staging areas to physically prohibit automobile entry while allowing trail access and other permitted uses over step-through gates.

Prior to Construction

1. Prior to grading for staging areas, trails and other park improvements, complete detailed engineering and architectural designs shall be prepared. The plans shall note: the proposed construction schedule; location of construction staging areas; and the total disturbance area or park improvement zone, required to develop the facilities.
2. Proposed projects shall include detailed planting plans listing plant materials for the proposed project, fuel modification zones and screening.
3. Routine facility operation, maintenance and repairs requiring loss of existing native vegetation will be delineated on the park biological survey plans. A revegetation plan shall be prepared, implemented and monitored.

Park Improvement Zone Biological Surveys

1. During the detailed design of park improvements, biological surveys of the proposed park improvement zone shall be conducted to determine existing biological resources including detailed descriptions of existing plant communities and the presence of any species or communities of special interest, especially target species.
2. Section 5.4.5 of the NCCP/HCP requires data be collected on plant communities from semi-permanent plots adjacent to different trail types. After the park is opened to public use, data on numbers and locations of trails and brush structure shall be collected at year one, two, four and eight (and every four years afterwards). The data collected will quantify the amount of trails and vegetative structure adjacent to trails, in areas potentially receiving dispersed off-trail use, and areas resistant to off-trail use. This data will be used to analyze the effects of recreational access on trail density and brush land habitat integrity.
3. Reports noting park improvement zones which could have conflicts with sensitive resources or other potential management problems shall be prepared and submitted to the Manager of Harbors, Beaches & Parks. These park improvement zones shall be monitored more carefully than other facilities within the park.
4. Part of the baseline data for the project site shall be a network of permanent photo points to document existing conditions in staging areas and along trails. Documentation of trail conditions shall include information on existing erosion problems, side trails and other features of the trail system.
5. Current copies of baseline data inventory maps shall be maintained at the park headquarters. These maps shall be reviewed before maintenance projects are implemented. Staff personnel shall be advised of sensitive resources within the project area.
6. Following completion of construction of staging areas and trails, bi-annual reviews to update the biological baseline studies shall be conducted.

Annual Reports

As required by NCCP/HCP in Section 5.8.3, annual reports shall be prepared including:

1. The results of recreational use monitoring including trails conditions, adverse habitat impacts, etc.
2. Specific recommendations involving modifications to existing management practices to minimize adverse impacts on biological resources resulting from recreational use.
3. Recommendations to initiate new management programs, such as educational programs or trail patrols in response to changing circumstances and conditions.

Trails

1. The intensity of trail and facility use shall be monitored and modified as appropriate based on observed conditions to assure that overuse does not occur impacting target species or sensitive habitat.
2. Trail use by equestrians and mountain bicyclists shall be prohibited for appropriate periods following heavy rains to avoid trail damage and impacts on adjacent habitat.
3. Seasonal trail guidelines shall be formulated including possible rotation of access points to protect sensitive species from significant adverse user impacts during nesting or other sensitive periods.
4. Unneeded trails shall be eliminated and impacted habitat restored to appropriate natural habitat conditions.
5. Trail use shall be monitored to minimize off-trail use, particularly by equestrian and mountain bike users.



Enforcement

1. Trail user groups shall be encouraged to participate in "self-monitoring and policing" programs to minimize instances of off-trail activities and other abuses to habitat resources within the reserve.
2. Sufficient park ranger staff shall be provided to adequately address misuse of trails or other park facilities.
3. As recommended in Central and Coastal Subregion NCCP/HCP, park rangers shall be given the authority to issue citations for misuse of trail or other park facilities.
4. Fines levied for abuse of park facilities resulting in harm to species or sensitive habitat shall be sufficient to discourage repeat occurrences.
5. Signage shall be used to clearly indicate appropriate behavior in the Nature Reserve of Orange County . See Section VI Public Outreach and Education Program for details on the proposed signage program.
6. Park ranger staff, docents, ranger reserves, signage and educational programs shall be used to communicate to trail users and other public users the importance of restricting recreational use to designated trails.
7. Repeated offenses by multiple users shall provide the grounds for temporary closure of trail segments, and where necessary, the entire park as a means of avoiding unacceptable adverse impacts to habitats and species within the reserve. Such temporary closures will also serve to educate users concerning the need to obey park and reserve rules and regulations, thereby reducing future recreational impacts to the biological resources of the reserve system.

Emergency Procedures

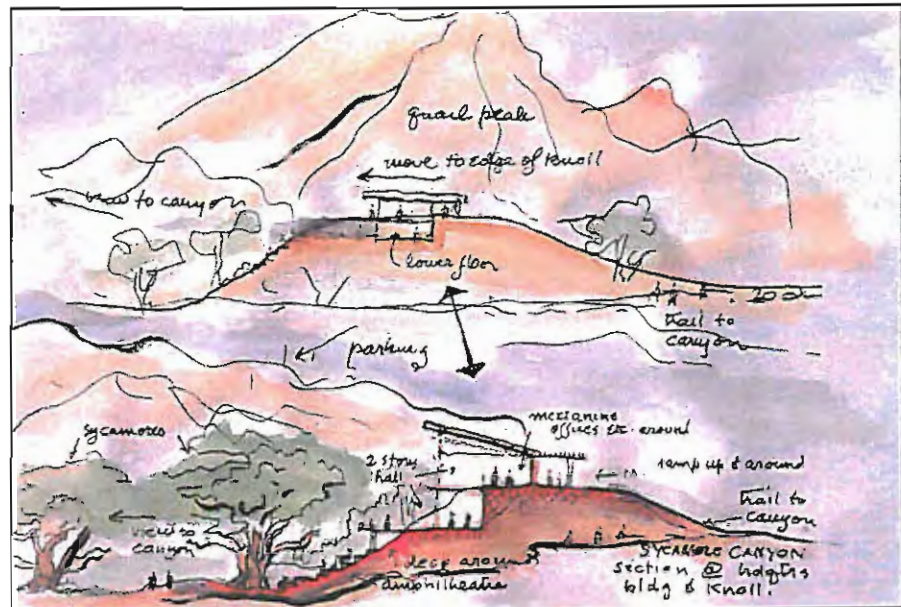
It is anticipated emergencies will occur in the park. In such emergency conditions, immediate repairs shall be permitted in accordance with the following:

1. If immediate action is necessary, a biologist is not required to be present. After the work is completed, the extent of the disturbed area shall be determined, revegetation plans prepared, implemented and monitored.
2. If eight or more hours are available before disturbance of the natural habitat occurs, every effort shall be made to delineate the area of disturbance and have a biologist map the resources. After the work is complete, revegetation plans shall be prepared, implemented and monitored.

F. FUNDING AND PHASING

General Development Plan Improvements

The improvements proposed in the General Development Plan were developed in response to the Laguna Coast Wilderness Park GDP goals and objectives (see Section IV Goals and Objectives) established in the community workshop process. These improvements are intended to meet the project goals of protecting valuable park resources while providing public access for appropriate recreation within the park.



Lawrence Halprin's conceptual drawing of Little Sycamore Interpretive Center

The cost of implementing the improvements proposed in the GDP is significant. A phasing plan has been developed to allocate the total implementation costs over time.

Table 3A General GDP Construction Costs

PHASE	IMPROVEMENTS	SUBTOTAL	TOTAL
Phase 1	Little Sycamore Canyon Staging Area	\$ 2,291,913	
	Crystal Cove State Park	Existing (no cost)	
	General Park Improvements	\$ 346,518	
	Subtotal Phase 1		\$ 2,638,431
Phase 2	Laurel Canyon Staging Area	\$ 1,041,855	\$ 1,041,855
Phase 3	Big Bend Equestrian Staging Area	\$ 228,157	
	James Dilley Staging Area	\$ 17,700	
	Subtotal Phase 3		\$ 245,857
Phase 4	Irvine Bowl Staging Area	Existing (no cost)	
	Total Cost for all Phases		\$ 3,926,143

Table 3B, on the following pages, provides a more detailed look at the probable construction costs for each of the four phases of implementation

Table 1-- Probable Construction Costs for Laguna Coast Wilderness Park
Phase 1 - Little Sycamore Staging Area.

ITEM	QTY.	UNIT	UNIT PRICE	SUB-TOTAL	TOTAL
Hardscape Elements					
Grading	1	ALLOW	30,000	30,000	
Utilities	1	ALLOW	50,000	50,000	
Interpretive center	3,000	S.F.	200	600,000	
Interpretive exhibits		ALLOW	250,000	250,000	
Acceleration and deceleration lanes on Laguna Canyon Rd.		ALLOW	50,000	50,000	
Entry and loop road	30,600	S.F.	2	65,790	
Parking	17,200	S.F.	2	36,980	
Park entry structure	200	S.F.	200	40,000	
Vehicular bridge	2	EA.	50,000	100,000	
Pedestrian bridge	1	EA.	20,000	20,000	
Picnic tables	12	EA.	330	3,960	
D.G. paving at picnic areas	20,460	S.F.	2	33,554	
Outdoor amphitheater	1	ALLOW	10,000	10,000	
Signage		ALLOW	75,000	75,000	
New hiking-only trails	9,510	S.F.	2	15,596	
New multi-use trails	6,600	S.F.	2	10,824	
Bike racks	2	EA.	850	1,700	
Lakes enhancement (Includes benches and trail renovation)	1	ALLOW	50,000	50,000	
Drinking fountain	2	EA.	2,750	5,500	
Trash can with holder	10	EA.	500	5,000	
Subtotal - Hardscape					\$ 1,453,904
Softscape					
Site preparation	753,959	S.F.	0	113,094	
Tree planting		ALLOW	10,000	10,000	
Shrub and tree planting for screening at Laguna Canyon Rd.	135,470	S.F.	2	203,205	
Shrub planting (Interpretive Center)	34,100	S.F.	1	17,050	
Groundcover planting (Interp. Center)	34,100	S.F.	1	17,050	
Shrub screening at parking lot	4,185	S.F.	1	2,093	
Revegetation of riparian areas	93,000	S.F.	0	18,600	
Revegetation of dry creek drainage area	46,074	S.F.	0	9,215	
Revegetation of CSS	306,900	S.F.	0	46,035	

Revegetation of grassland (Seed and container planting)	138,415	S.F.	0	8,305	
Temporary irrigation at Interp. Center	34,100	S.F.	1	34,100	
90 Day Maintenance	753,959	S.F.	0	60,317	
Subtotal - Softscape					\$ 539,064
Subtotal - Hardscape and Softscape for Little Sycamore					\$ 1,992,968

Phase 1 - General Park Improvements

ITEM	QTY.	UNIT	UNIT PRICE	SUB-TOTAL	TOTAL
Hardscape Elements					
New multi-use trails	63,000	S.F.	2	103,320	
Fencing at prohibited access areas (3.5' high 2 strand fence)	33,000	L.F.	6	198,000	
Subtotal for General Park Improv'm't					\$ 301,320
Subtotal for Phase 1					\$ 2,294,288
Contingency 15%					\$ 344,143
Total for Phase 1					\$ 2,638,431

Phase 2 - Laurel Canyon Staging Area

ITEM	QTY.	UNIT	UNIT PRICE	SUB-TOTAL	TOTAL
Hardscape Elements					
Grading	1	ALLOW	20,000	20,000	
Utilities	1	ALLOW	25,000	25,000	
Entry road	11,160	S.F.	2	23,994	
Parking	19,065	S.F.	2	40,990	
Vehicular bridges					
Access road to staging area	1	EA.	100,000	100,000	
Laguna Canyon Road	1	EA.		N.I.C.	
El Toro Road	1	EA.		N.I.C.	
Pedestrian bridge					
Hiking-only	1	EA.	20,000	20,000	
Multi-use trail	5	EA.	20,000	100,000	
Interpretive kiosk	1	EA.	10,000	10,000	
Picnic tables	12	EA.	330	3,960	
D.G. paving at picnic areas	13,640	S.F.	2	22,370	
Signage		ALLOW	50,000	50,000	

Restroom	1	ALLOW	100,000	100,000	
New hiking-only trails	2,400	S.F.	2	3,936	
New multi-use trails	35,500	S.F.	2	58,220	
Bike racks	2	EA.	850	1,700	
Drinking fountain	2	EA.	2,750	5,500	
Trash can with holder	6	EA.	500	3,000	
Subtotal - Hardscape					\$ 588,670
Softscape					
Site preparation	252,495	S.F.	0	37,874	
Tree planting		ALLOW	10,000	10,000	
Shrub and tree planting for screening at Laguna Canyon Rd.	155,310	S.F.	2	232,965	
Revegetation of riparian areas	33,480	S.F.	0	6,696	
Revegetation of grassland	63,705	S.F.	0	9,556	
90 Day maintenance	252,495	S.F.	0	20,200	
Subtotal - Softscape					\$ 317,291
Subtotal - Hardscape and Softscape for Laurel Canyon					\$ 905,961
Contingency 15%					\$ 135,894
Total for Phase 2					\$ 1,041,855

Phase 3 - James Dilley Staging Area

ITEM	QTY.	UNIT	UNIT PRICE	SUB-TOTAL	TOTAL
Signage		ALLOW	5,000	5,000	
Bike racks	2	EA.	850		
Trash can with holder	2	EA.	500	1,000	
Interpretive kiosk	1	EA.	10,000	10,000	
Total for Phase 3					\$ 17,700

Phase 3 - Big Bend Staging Area

ITEM	QTY.	UNIT	UNIT PRICE	SUB-TOTAL	TOTAL
Hardscape Elements					
Grading	1	ALLOW	10,000	10,000	
Utilities	1	ALLOW	20,000	20,000	
Parking	14,835	S.F.	2	31,895	

Railroad tie wheel stops	10	EA.	50	500
Equestrian corral fencing	240	L.F.	10	2,340
4' equestrian gate	1	EA.	200	200
3 rail fence adjacent street	240	L.F.	10	2,340
Signage		ALLOW	5,000	5,000
Restroom	1	ALLOW	100,000	100,000
Horse tie-up rails	2	EA.	550	1,100
Bike racks	2	EA.	850	1,700
Drinking fountain	1	EA.	2,750	2,750
Water guzzler	2	EA.	200	400
Trash can with holder	2	EA.	500	1,000
Subtotal - Hardscape				\$ 179,225
Softscape				
Site preparation	17,012	S.F.	0	2,552
Tree planting		ALLOW	2,500	2,500
Shrubs and groundcover	17,012	S.F.	1	12,759
90 Day maintenance	17,012	S.F.	0	1,361
Subtotal - Softscape				\$ 19,172
Subtotal - Hardscape and Softscape for Big Bend				\$ 198,397
Contingency 15%				\$ 29,760
Total for Phase 3				\$ 245,857

Probable Construction Cost Summary

Phase	Projected Costs
Phase 1	2,638,431
Phase 2	1,041,855
Phase 3	245,857
Total	\$3,926,143

NCCP/HCP FUNDING

Funding for implementation of the actions and requirements contained in the subregional NCCP/HCP will come from a combination of participating NCCP landowners, local, state and federal agencies/programs and others, including non-profit foundations. The three primary funding sources include:

- A \$10 million, "non-wasting" endowment to fund the adaptive management program within the reserve over the life of the reserve system, contributed by the same landowners (such as the TCAs, IRWD and the County) within the subregion who were willing to fund the preparation of the NCCP/HCP and transfer land to the reserve system at no cost.
- A mitigation mechanism that gives landowners who are not contributing directly to creation/management of the reserve a choice of how to mitigate proposed conversions of CSS habitat located outside the reserve system, with funds supporting restoration/enhancement activities within and outside the reserve, or acquisition of lands (fee title or easements) to add to the reserve or special linkages.
- Fees collected during interim planning, prior to approval of the NCCP/HCP.

State/federal contributions will fund research, focused species inventories, and acquisitions of designated lands for the reserve or "special linkages."



VI. PUBLIC OUTREACH &
EDUCATION PROGRAM

VI. PUBLIC OUTREACH/ EDUCATION PROGRAM

Public outreach and education of park visitors is a critical element of the resource management program. Interpretive programs that foster an understanding of human roles in preserving the park's natural balance are vital to its success as a healthy, natural system. In particular, educating the public on the potentially profound effect of inappropriate human intrusion in the park is critical.

The interpretive program for the park will focus on the concept that the park is the core of a larger ecosystem that is critically dependent on maintaining an ecological balance within the park. The physical, biological and cultural resources within the park are part of a fragile network of forces that depend upon each other for perpetuation. Breakdown of this balanced system would be devastating to the park's ecology.

The proposed Laguna Coast Wilderness Park interpretive program will communicate park resource value and sensitivity through a comprehensive framework of docent tours and programs, park ranger talks, presentations, multi-media materials, hands-on experiences, signage and park resource take-home materials and information.

Components of the program focus on:

- Education for all ages and user groups with special emphasis on young children.
- Emphasis on the park's unique and sensitive resources.
- Guidelines for appropriate behavior when using the park.
- Emphasis on resource management concepts including the park's important role in the NCCP/HCP.
- Participatory education and interpretation activities in the park.
- Take-home concepts and methods for resource conservation, protection and management.
- Information on current park research and field work with special emphasis on opportunities for volunteer and park adoption programs.

Facilities proposed for park interpretation and education include the interpretive center, interpretive overlooks and nodes, an outdoor amphitheater and a "nature hike" oriented trail in Little Sycamore Canyon. Interpretive trails and signage will also occur at Laurel Canyon, Crystal Cove State Park and the James Dilley Preserve. It is anticipated, however, the park visitor's most educational and inspiring experiences may be quiet, reflective hikes or strolls on trails through the park's extraordinary canyons and along its ridges.

Tools for outreach and education will include park staff, signage, park brochures and literature, the interpretive center, exhibits and displays, nature trails, academic outreach, volunteer programs, a good neighbor program, and the Laguna Beach arts community.

A. PARK STAFF

1. Regional Parks Operations Staff

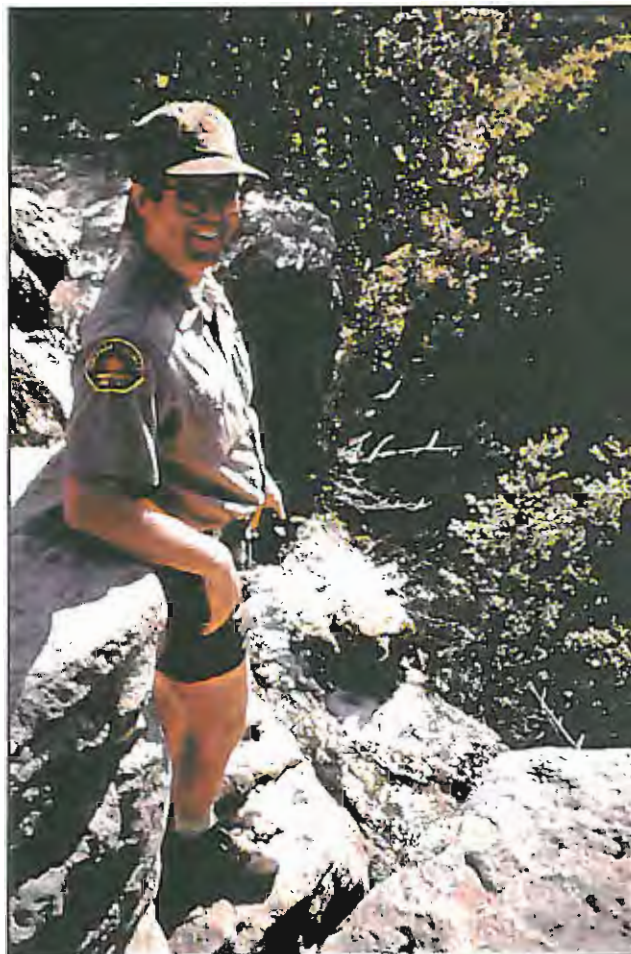
Park staff will be actively involved in resource protection, public outreach and education. County park rangers will work cooperatively with the Nature Conservancy and the Irvine Company, California Fish and Game, and other resource agencies. Education of park staff on the NCCP/HCP program is critical.

2. Natural Resources Specialist

In order to effectively manage the resources of all wilderness and natural parks in the County system, a full-time Natural Resources Specialist will be responsible for overseeing and implementing the recommendations and guidelines of all Resource Management Plans for County of Orange parks.

The Natural Resources Specialist will:

- Have detailed knowledge of park resources, goals and objectives,
- Review all habitat enhancement plans and specifications to ensure conformance with NCCP/HCP, park goals and objectives and the park's RMP,
- Review all monitoring reports and
- Oversee all maintenance activities performed by maintenance personnel.



Park Ranger Larry Sweet above Laurel Cyn. Waterfall

B. SIGNAGE

Park signs are required to convey four types of information; directions, regulations, interpretation and identification. As with other wilderness park management tools, signs must be related to specific park management objectives. A goal will be to accomplish these objectives with the fewest number of signs necessary, to prevent "sign clutter". Whenever possible, maps and informational brochures should be used in place of signs. In general, park

signs will be low profile, natural colors and constructed of natural materials to complement the park's wilderness character. Graphic symbols will be used to convey information in a simple manner. Signage should also address the visually disabled visitor.

Identification Signage

1. Primary

Primary signage will identify the park location and its important regional facilities from the following locations:

- a. Along the San Diego freeway prior to the Laguna Canyon Road off-ramps.
- b. Along the southbound Laguna Canyon Road near the northern park boundary to inform the visitor they have entered the park.



2. Secondary

Secondary identification signage will occur at northbound and southbound approaches along Laguna Canyon Road to identify park staging areas at Little Sycamore Canyon, Laurel Canyon and the Big Bend equestrian staging area.

3. Tertiary

Tertiary identification signs will occur at the park interpretive center, staging areas and trail heads to inform visitors of park programs, facilities and special park features.

Directional signage

Directional signage will be placed as necessary to convey trail and park facility locations, and sometimes mileage.

Regulatory Signage

Regulatory signage will define the rules and regulations of the park and convey acceptable and restricted uses within the park. The signs will be placed at access points and trail heads.

Interpretive signage

Interpretive signs will be a critical component of the interpretive program. Interpretive signage, park brochures, educational materials and interpretive center exhibits will be consistent in themes and overall visual presentation.

C. PARK BROCHURES / LITERATURE / VIDEO / INTERNET

Park literature should include maps and information about park regulations and hours of operation, park access and recreation, NCCP/HCP, park geology, plant communities, wildlife habitat, history and pre-history, environmental restoration programs, resource conservation issues and educational programs offered by the park.

Park brochures should be developed including a park user brochure, adjacent homeowners brochure and an NCCP informational brochure.

Two examples of excellent existing brochures on Laguna Coast Wilderness Park are included: see Appendix B Laguna Coast Wilderness Hikes & Tours developed by the Laguna Canyon Foundation; and Appendix C, The Irvine Company Open Space Reserve developed by The Nature Conservancy and The Irvine Company.

The County of Orange computer internet web site currently includes extensive information on the Harbors, Beaches and Parks program. Once text and graphic information is developed for park informational brochures and literature, it should be formatted for inclusion on the Harbors, Beaches and Parks web page.

A video or series of videos on Laguna Coast Wilderness Park could also be developed to target particular audiences such as fund raising campaigns or school groups.

D. INTERPRETIVE CENTER

At the interpretive center in Little Sycamore Canyon, interpretive information could be presented in the form of participatory exhibits, presentations, panoramic views and audio visual materials to convey the park's physical, biological and cultural resources. Physical resource discussions will include the park's geology, hydrology, paleontology and climate as key contributions to its ecology.

1. Geology

The geologic structure of the park (a result of historic uplifting of the San Joaquin Hills) is the foundation of the park as we know it today. Interpretation of the park's geology reveals the park's diverse tapestry of unique coastal hills and canyons.

2. Hydrology

Watershed from the park's canyons makes an important contribution to the hydrology of the region. Interpretive center subjects regarding watershed could include sustenance of plant and animal life, Laguna Lakes, and sand replenishment for beaches in Laguna Beach and Crystal Cove State Park.

3. Biology

Biological resources themes and subjects will center on the major plant communities within the park including coastal sage scrub, riparian woodland, grassland, oak woodland, chaparral and wetland communities. Interpretive concepts to be communicated include wildlife dispersion corridors, foraging, wildlife cover, species interdependence, endangered plants and animals, species of special interest and a comprehensive overview of the Central and Coastal Subregion of the Natural Communities Conservation Plan/Habitat Conservation Plan program.

4. Cultural

Cultural resource messages will include discussions regarding the park's archaeological past, its recent and current political condition and its future with regards to environmental awareness, resource preservation and the capability of the park to provide a much needed open space retreat from ever increasing suburbanization.

E. EXHIBITS/DISPLAYS

Exhibits and displays in the park interpretive center and at kiosks at park staging areas should include resource related educational information. Displays should be rotated to encourage continuing public interest. Displays could focus on the park's role in NCCP/HCP, particular plants, plant communities, resource protection underway in the park, park animals as well as stories of early human use of the park's lands. Staging area displays should emphasize those resources which are associated with that particular staging area and include general park resource information.



Display space should be available as an outreach opportunity for docent groups, Adopt-A-Park volunteers, Trails4All information, etc. Announcements of current park resource management projects should be posted at the staging area kiosks.

F. NATURE TRAILS

Excellent self-guided nature trails currently exist at Dilley Preserve and Laurel Canyon. One or more additional self-guiding nature trails should be provided in the park with interpretive information posted at trailheads and in park staging areas. As implemented in the Dilley Preserve, the trail markers should be augmented by leaflets designed to explain and interpretive the nature trails. Nature trails should be designed with relatively smooth surfaces

to facilitate their use by elderly and disabled visitors. Interpretive information should be ADA accessible, where possible. Trailheads should be designed in close proximity to parking and a restroom.

G. ACADEMIC OUTREACH

Park staff should identify contacts in pertinent departments at local colleges and universities to assist with research on park resource issues. Academic research could be conducted in biological, earth and ecological sciences, archeology, paleontology, history, recreation, education and social sciences.

Academic internships related to park resources should be made available on the basis of park needs. Interns will require some supervision by park staff. Interns could participate in monitoring visitor impacts on natural resources, trails and other high use areas; research and development of interpretive displays; documentation of plant and animals species occurring in the park, including the preparation of herbarium samples; research on habitat restoration techniques; documentation on wildlife corridors; and presentation of interpretive talks.

Efforts of professional researchers and volunteers should be coordinated. This will enable information to be compiled into a common data base to be shared by individuals, groups and other landowners in the Nature Reserve.

H. VOLUNTEER PROGRAMS

1. Docent programs

Laguna Coast Wilderness Park is fortunate to have a well established volunteer docent program. In 1992 two non-profit environmental organizations, Laguna Greenbelt, Inc. and The Nature Conservancy, in coordination with the County of Orange started a docent and stewardship training and certification program, available through Saddleback College, a community college.

To become interpretive docents, individuals must pass an intensive course in environmental studies focusing on interpretation of Orange County's flora and fauna, geology, and cultural



history. Docent students are also given an overview of the Central Coastal NCCP/HCP and sensitive natural resources. Field trips conducted by local experts (i.e. geologists, botanists, etc.) are an important component of the docent course.

The docent program's primary goal is to give the public an understanding of the importance and sensitivity of the park's natural resources. By instilling an appreciation for the park's ecosystem, it is more likely future visitors will respect and protect the park's natural resources.

The Nature Conservancy has approximately 58 active docents who lead hikes in The Irvine Company's Southern Open Space Reserve, as well as the The Irvine Company's Northern Open Space Reserve (Limestone Canyon).

Laguna Greenbelt, Inc. coordinates approximately 60 docents. The majority of the docents conduct interpretive hiking tours of Laguna Coast Wilderness Park. Other docents specialize in interpretive mountain cycling and equestrian tours. Docents will continue to provide an extraordinary amount of support for the park and its operations.



Docent-led hike in Little Sycamore Canyon

2. Laguna Canyon Foundation

The Laguna Canyon Foundation is a 501 (C)(3) nonprofit corporation dedicated to preserving, enhancing and protecting Laguna Coast Wilderness Park. The Foundation has been instrumental in securing funding for the purchase of the parkland and will continue to raise funds for future park improvements.

3. Ranger Reserve Program

The Orange County Harbors, Beaches and Parks Ranger Reserve program (see Appendix J) was developed as an ancillary unit of dedicated volunteers to augment the interpretive programming and visitor services provided by the Harbors, Beaches and Parks Department. Ranger Reserves undergo basic training including public relations, policies and procedures, radio communications, emergency situations, interpretive programs, special event logistics, first aid and C.P.R. Ranger Reserves are expected to participate a minimum of 18 hours per month and generally work under the supervision of the full-time Park Ranger staff.

Ranger Reserves have been used at Laguna Coast Wilderness Park to conduct tours and to provide park safety and resource protection during special events. Ranger Reserves are an important and valuable resource to expand the visitor services offered at Laguna Coast Wilderness Park.

4. Adopt-A-Park

The County of Orange Adopt-A-Park program (see Appendix K) was implemented to expand volunteer programs in the Harbors, Beaches and Parks Department. The program encourages adoption of a park, historic site, harbor, beach or trail. It provides the opportunity to work outdoors, most often in a natural environment, on a project to improve park facilities. General projects may include picking up litter, cleaning up leaves and trash, trimming trees, or caring for plants and animals. Specific projects may involve a volunteer's specialized carpentry, electrical, plumbing or building skills.

Laguna Coast Wilderness Park Adopt-A-Park projects by Laguna Greenbelt, Inc. and Laguna Canyon Foundation volunteers have included planting native trees and shrubs in Willow Canyon, the park entrance monument sign, sunshade structure and rock mural at the temporary Park headquarters.

5. TRAILS4ALL

In October 1995, a group of dedicated trail supporters, with private funds, formed TRAILS4ALL, Inc. This non-profit organization's primary goal is to provide financial support for trail projects in Orange County and award grants to participants to purchase trail building tools and materials. Funding would be considered for the production of trail maps and for special programs for seniors, at-risk youth, trail boss training and other educational projects.

TRAILS4ALL currently functions as a public-private partnership with the County of Orange providing seed money over the first three years of operation. TRAILS4ALL is a volunteer recreation trail advocacy organization comprised of equestrians, hikers and trail runners working together to build and preserve multi-use trails in Orange County.

6. Stewardship Program

The Stewardship program is similar to the docent program. However, more emphasis is placed on restoration principles and activities than the traditional interpretive docent programs. The Stewardship program is offered at Saddleback College.

I. GOOD NEIGHBOR PROGRAM

A community outreach program is needed to provide information to local residents about the implications of living in close proximity to a wilderness park. The program should focus on the responsibilities and benefits of this relationship.

The program will incorporate brochures, park signage, lecture series, and community roundtables to educate local residents about the regional importance of the wildlands included in the reserve and how management activities are important to the long-term viability of the reserve system. An excellent example of a good neighbor brochures, is the set of brochures *Living on the Edge, How to Keep Pets Safe and Coexist with Your Wild Neighbors; Living with Wildlife; and Gardening is for the Birds*, developed by The Laguna Greenbelt, Inc. (see Appendix D).

The park should provide educational materials to visitors who live in the vicinity of the park. Such educational materials should include information about invasive landscape plants, non-point source water pollution, conflicts between domestic pets and wildlife, and wildfire prevention. These materials should be available at: the park's interpretive center; all park staging areas; Newport Beach, Irvine, Laguna Hills and Laguna Beach City Halls; and other County offices.

A brochure highlighting the information should be prepared and distributed to local homeowners' associations for discussion at association meetings as well as inclusion in newsletters. Interpretive talks and docent-led park walks geared for local residents should be offered and attendance encouraged.

It is also the intention of the park to be a good neighbor to surrounding communities. For example, the access gates in north Laguna Beach may inadvertently increase traffic, parking congestion and noise. A community meeting or letter to local homeowners would help introduce the public access plan and allow community feedback before the gates are opened.

J. LAGUNA BEACH ARTS COMMUNITY

Given the proximity of Laguna Coast Wilderness Park to the active art community of Laguna Beach, local museums and artists should be encouraged to become involved in park education and interpretation programs. For example, special events in the park's interpretive center involving music, dance, theatrics or multi-media presentations could emphasize park resource issues. Artistic events in the park could be an effective method of conveying educational information in a way that will appeal to park visitors who are not attracted to traditional interpretive programs.



Laguna Beach plein air artist in Willow Canyon

K. NCCP SPEAKERS BUREAU AND MEDIA EVENTS

Work with a strategic working groups of landowners and stakeholders in the Orange County Nature Reserve to develop an NCCP speakers bureau and media plan for the Orange County Nature Reserve.

L. RECOMMENDATIONS

1. Develop core interpretive and educational messages
 - a. Interpretive center
 - b. Exhibits and displays
 - c. Nature trails

2. Design and produce brochures and park literature
 - a. Park user brochure
 - b. Homeowners' brochure
 - c. NCCP informational brochure

3. Develop signage program
 - a. Identification signs
 - b. Directional signs
 - c. Regulatory signs
 - d. Interpretive signs

4. Develop County of Orange Internet web page for Laguna Coast Wilderness Park

5. Develop, as needed, video programs to target specific audiences.

6. Develop and implement park staff NCCP training program

7. Develop outreach program
 - a. Academic outreach
 - b. School children
 - c. Volunteers
 - d. Good neighbor program
 - e. Laguna Beach Arts Community
 - f. County of Orange Trails Advisory Committee

8. Develop method to evaluate the success of the education and outreach

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VII. FIRE MANAGEMENT PLAN

VII. FIRE MANAGEMENT





Fires are a natural occurrence within the native plant communities of Laguna Coast Wilderness Park and play an important role in maintaining biodiversity within the Park's ecosystem. Fire reduces dense vegetation and thatch buildup, thereby allowing younger healthier vegetative growth and the germination of forbs and grasses. Following a fire, native shrubs and trees recover quickly through a process of crown-sprouting. Once a shrub or tree loses its above-ground biomass, buds in the root crown quickly sprout using the existing root systems. In addition, the fire ash provides nutrients that aid in the fast re-growth of the affected native plant material and the germination of seeds stored in the soil. With increased access to sunlight and increased soil nutrients from fire ash, these seeds germinate and establish quickly.



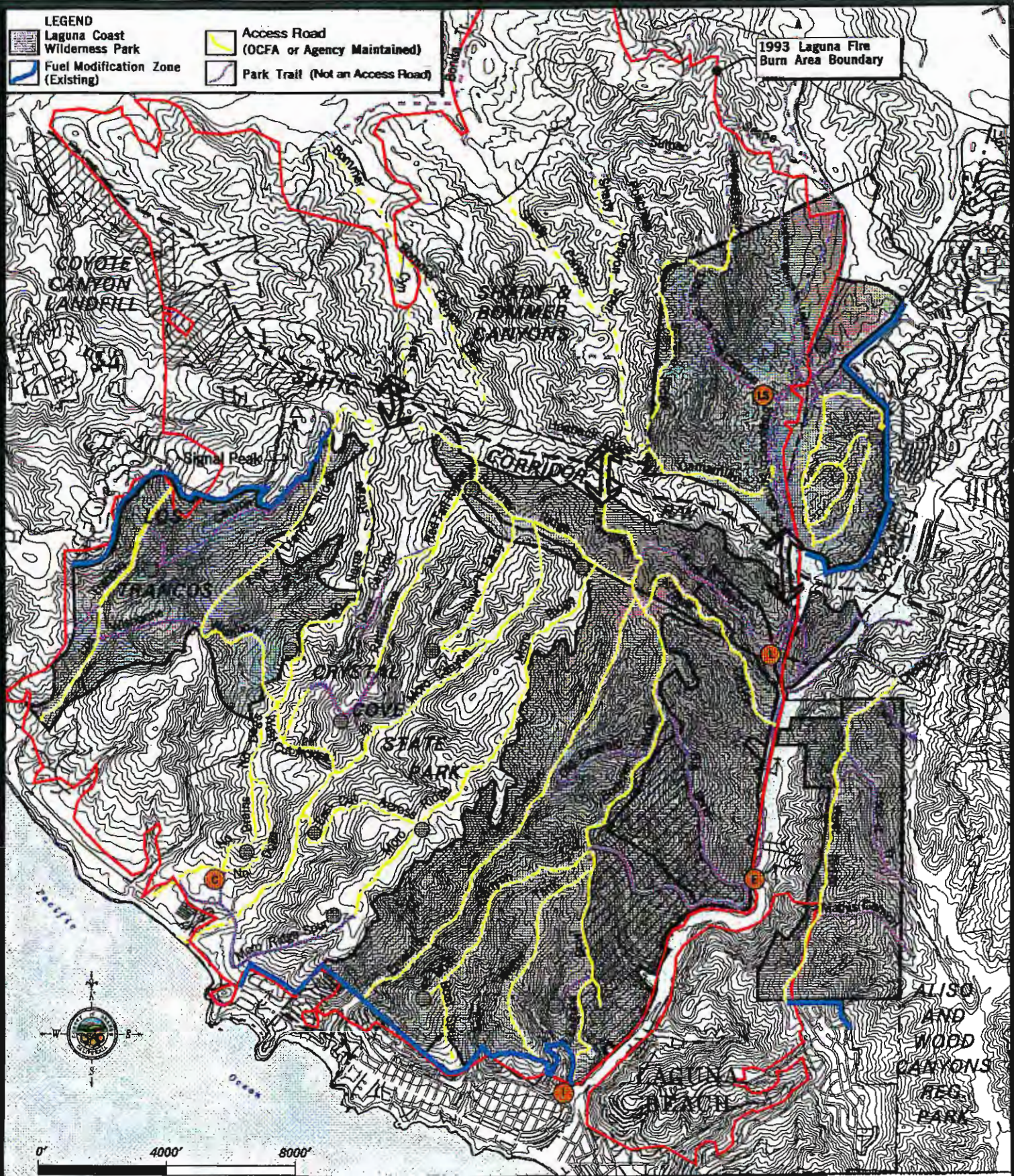
1993 Laguna Beach Fire

Between October 27 -29, 1993, a fire in the San Joaquin Hills (Laguna Beach Fire) burned 14,337 acres of natural vegetation such as coastal sage scrub, chaparral, oak and sycamore woodland and grassland habitat, including roughly 90% of the natural vegetation within Laguna Coast Wilderness Park (see Exhibit 14), as well as destroying 347 structures in the City of Laguna Beach and the communities of Emerald Bay and El Morro. With the exception of mechanical seeding of certain slopes adjacent to roads and residential areas, LCWP was allowed to recover naturally.

LEGEND

 Laguna Coast Wilderness Park	 Access Road (OCFA or Agency Maintained)
 Fuel Modification Zone (Existing)	 Park Trail (Not an Access Road)

1993 Laguna Fire Burn Area Boundary



NOTE: ACCESS ROADS SHOWN ON THIS MAP ARE AS DEPICTED ON OCFA MAPS AND HAVE NOT BEEN FIELD VERIFIED FOR ACCURACY. THE SHORT TERM FIRE MANAGEMENT PLAN WILL INCLUDE AN ACCURATE ACCOUNTING OF ALL EXISTING AND PROPOSED ACCESS ROADS.



LAGUNA COAST WILDERNESS PARK

COUNTY OF ORANGE
PUBLIC FACILITIES and RESOURCES DEPARTMENT
HARBORS, BEACHES AND PARKS

FIRE MANAGEMENT
Exhibit 14

It may take several more years for coastal sage scrub and other habitats to support pre-fire wildlife and bird populations. Gnatcatcher and cactus wren surveys have been conducted to evaluate the rate of recovery for these sensitive bird species. Table 4 shows the results of these surveys.

Table 4- Post Fire Surveys of Breeding Pairs of Gnatcatchers and Cactus Wrens in 1993 Laguna Beach Fire Burn Area

	<i>1992 Pre-Fire</i>	<i>1994</i>	<i>1995</i>	<i>1996</i>
Gnatcatcher	127 ¹	12 ¹	5 ²	11 ³
Cactus wren	282 ¹	79 ¹	31 ²	39 ³

¹ Bontager et al 1995, LSA 1995

² GWB 1996

³ Harmsworth Assoc. 1996

While gnatcatcher and cactus wren pairs are still well below pre-fire numbers, populations of these bird species are likely to return to pre-fire conditions as birds move back into the burn area from surrounding refugia. Since cactus wrens use cactus patches for nesting, the rate of cactus patch regeneration will greatly affect cactus wren re-population.

Additional post-fire monitoring is needed to assess the rate of gnatcatcher and cactus wren recovery in the burn area. This monitoring is planned to be coordinated by The Nature Reserve of Orange County (TNROC) board in consultation with the resource agencies. In order to study the biological impacts from the 1993 Laguna Beach Fire, The Nature Conservancy has established post-fire vegetation recovery monitoring areas in LCWP. Post-fire monitoring will provide important data on the rate of recovery of the native habitat areas.

Existing Fire Management Programs

Following the 1993 Laguna Beach Fire, the Laguna Beach Fire Department (LBFD) has embarked upon projects to improve access for emergency vehicles, expand wildfire safety zones and improve water supplies. LBFD has expanded its fuel modification zones along the LCWP boundary using techniques such as hand clearing and goat grazing.

For existing and proposed developments in unincorporated territory (i.e. Newport Coast and Emerald Bay) the Orange County Fire Authority (OCFA) has been active in insuring that proper fuel modification zones are established and maintained along the urban/wildland interface. Prior to the Laguna Beach Fire, residential development in Newport Coast had established minimum 170 ft. wide fuel modification zones consistent with the County of Orange Fuel Modification Guidelines. In 1996, an enhanced Emerald Bay fuel management plan was adopted which expanded the perimeter community fuelbreak from 150 to 300 feet in width, and additionally addressed vegetative hazards at the mouth of Emerald Canyon.

In August 1994, County HBP established a Fire Emergency Procedure (FEP) for all of its wilderness and regional parks, including Laguna Coast Wilderness Park (see Appendix E). The FEP includes the following:

- Channels of responsibility for all actions related to fire prevention and suppression
- Initial fire discovery and reporting procedures
- Procedures for fire prevention, pre-suppression, suppression, emergency evacuation and fire safety
- Post-fire resource damage assessment and restoration procedures

Future Fire Management Plans

As described in the NCCP/HCP Implementation Agreement, a short-term fire management plan will be prepared by TNROC within eighteen months following the signing of the NCCP/HCP Implementation Agreement (by February 13, 1998), and a long-term fire management plan shall be produced within three years following the signing (by July 17, 1999). Both the short-term and long-term fire management plans will be subsequently reviewed by CDFG, USFWS and the TNROC non-profit board to insure that it is consistent with policies set forth in the NCCP/HCP.

Prior to development of the TNROC short-term and long-term fire management plans, the following is recommended:

Fire Management Recommendations

- In general, fire control methods should be implemented which cause the least damage to LCWP natural resources while still providing effective fire control needed to protect human life and property (NCCP/HCP 1995).
- Continue existing fire control methods by OCFA and LBFD at urban-wildland interface areas to protect human life and property surrounding the park.
- LCWP ranger-in-charge shall follow County HBP Fire Emergency Procedure (FEP).
- Prior to development of the TNROC short-term and long-term fire management plans, fire management activities in the park's interior areas burned by the Laguna Beach Fire should be limited to those fire management activities in effect at the time of the fire.
- Maintain existing or proposed fuel modification zones along the park boundary at the urban-wildland interface. If it is determined that additional fuel modification is required within LCWP, work with OCFA or LBFD to determine the appropriate boundary of fuel modification. Once the boundary of the fuel modification zone is identified, follow the guidelines in the Central Coastal NCCP/HCP in conducting biological inventories of the affected area and in determining the least damaging methods for reducing fuel loads in these areas.

- Support ongoing studies by CDF, CDPR, TNC and TIC to evaluate the effectiveness of prescribed fire in controlling exotic plant species.
- Continue the post-fire vegetation monitoring by The Nature Conservancy et al. Use data to determine the rate of recovery for burned habitat types.
- As called for in the NCCP/HCP, prior to the development of the TNROC short-term and long-term fire management plans, the following fire management policies will apply to LCWP:
 1. *To the extent practicable, the use of bulldozers or other mechanical land altering equipment will be restricted to the widening and improving of existing (access) roads (see Exhibit 14 for existing access roads).*
 2. *To the extent practicable, new (access) roads or firebreaks will not be created by mechanical methods. Hand crews will be used to create any necessary new firebreaks whenever practicable or feasible (Note: OCFA has indicated that firebreaks are no longer used as wildland defense tools) .*
 3. *When conditions are suitable, backfiring from existing (access) roads, natural (features), trails (or fuel breaks) will be considered preferable to constructing new fire control lines and other methods of suppression.*
 4. *To the extent practicable, ground tactical operations will use natural features such as ridgelines, as well as (access) roads and firebreaks for containment lines.*
 5. *The minimum number of fire suppression vehicles considered necessary for effective fire control by the command fire agency or ground tactical units will be allowed to drive off fire roads and fire breaks.*
 6. *To the extent practicable, ground tactical units will use water saturation as a mop up technique rather than digging out and stirring hot spots in locations with significant CSS or other natural resources and/or in areas potentially subject to significant post-fire erosion.*
 7. *Until such time as a specific set of fire-related recreational use policies are prepared by OCFA/HBP, the interim Chino Hills State Park policies (see pp. 6-9, 11 in Appendix F), shall serve as the policies for “fire prevention techniques”, “pre-suppression activities” and the fire season “set-up plan”.*

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VIII. EXOTIC PLANT CONTROL

VIII. EXOTIC PLANT CONTROL

Through displacement of native plants and natural habitats, invasion and establishment of non-native (exotic) plant species can have a profound impact on the biodiversity and habitat value of existing natural plant communities (Mooney and Drake 1986; Groves and di Castro 1991; D'Antonio and Vitousek 1992). In addition, native habitat restoration can be impeded by the invasion of exotic plants (The Nature Conservancy 1993). These threats will continue to be accentuated as additional planned developments are built adjacent to the park. Management of exotic plants in concert with restoration and fire management programs will be essential to maintain and enhance the biodiversity in the park.















In LCWP and surrounding open space areas, infestations of the following exotic plant species exist; artichoke thistle, pampas grass, tree tobacco, castor bean, mustard, fennel, giant reed, annual grasses, and eucalyptus (see Exhibit 15). These exotic species are most prevalent in non-native grasslands, but they also occur in riparian and coastal sage scrub areas. If left uncontrolled, exotic plant species will likely increase in abundance and prevent the gradual re-establishment of coastal sage scrub, riparian and native grassland plant communities.

Exotic plants are of particular concern within the 1993 Laguna Beach Fire burn areas because of their potential for invading recovering native plant communities and impeding natural processes.






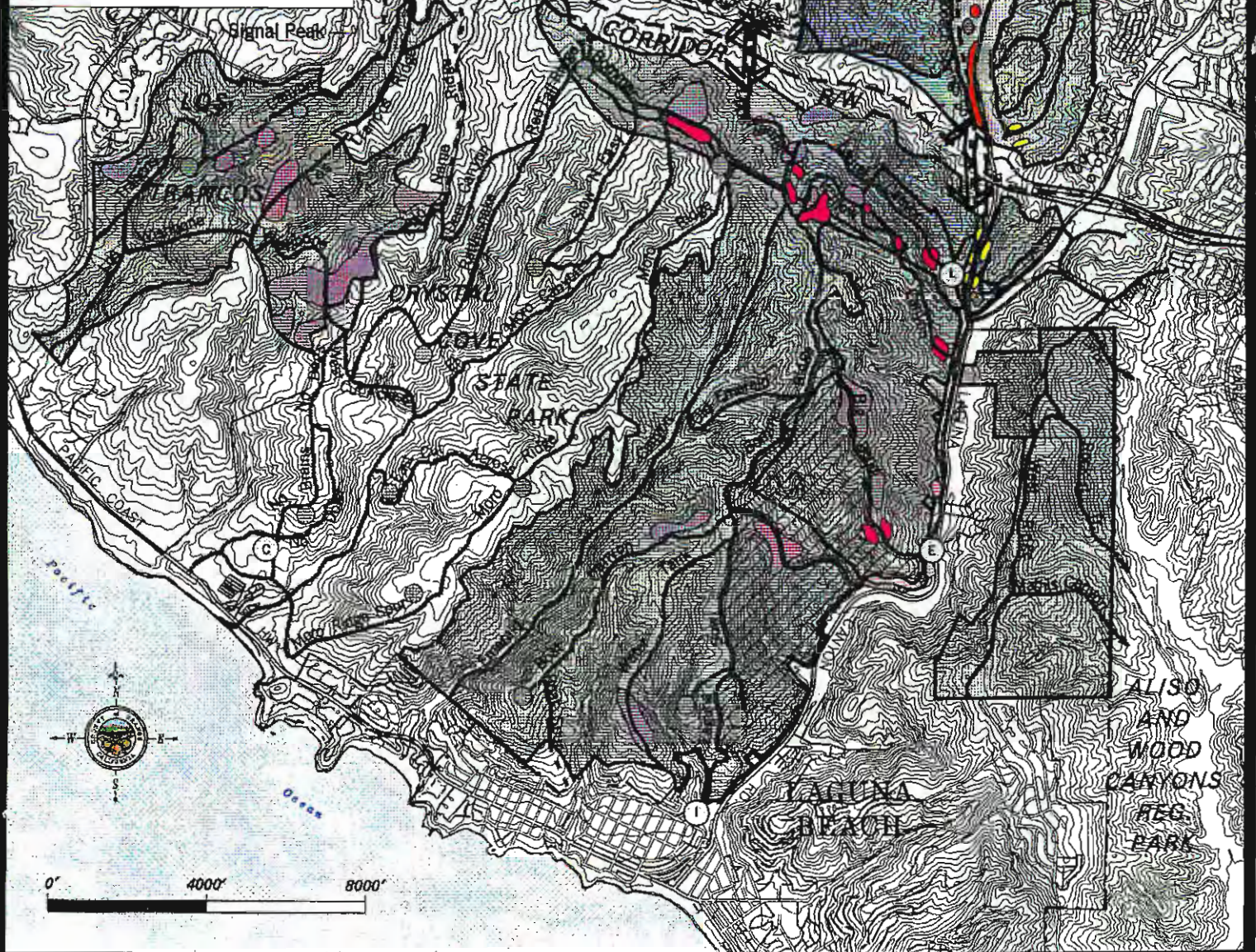
Pampas Grass along Laguna Creek in the Laguna Laurel Zone

LEGEND

-  Tree Tobacco (*Nicotiana glauca*)
-  Castor Bean (*Ricinus communis*)
-  Eucalyptus (*Eucalyptus rudis*)
-  Giant Reed (*Arundo donax*)
-  Artichoke Thistle (*Cynara cardunculus*)
-  Pampas Grass (*Cortaderia selloana*)
-  Park Trails
-  Trail/Wildlife Undercrossing
-  Little Sycamore Staging Area
-  Laurel Canyon Staging Area
-  Equestrian Staging Area - Big Bend
-  Crystal Cove State Park Existing Facilities
-  Irvine Bowl Pedestrian Access Gate
-  View Point

AREA DESIGNATIONS

-  Laguna Coast Wilderness Park
-  NCCP Prohibited Access Area
-  Laguna Lakes



LAGUNA COAST WILDERNESS PARK

COUNTY OF ORANGE
PUBLIC FACILITIES and RESOURCES DEPARTMENT
HARBORS, BEACHES AND PARKS

EXOTIC PLANTS

Exhibit 15

Small isolated stands of California pepper tree (*Schinus molle*), Brazilian pepper tree (*Schinus terebinthifolius*) and Russian Thistle (*Salsola australis*) also exist in the park, but as of yet, are not considered to be widespread or rapidly increasing in numbers. These exotics should be monitored to determine if they begin to significantly displace native habitats and need to be eradicated.

The following is a description of the existing problem exotic plant species in LCWP, including removal methods.

Artichoke thistle (*Cynara cardunculus*) currently occupies many of the non-native grasslands in the park previously grazed by cattle, especially on the ocean-facing slopes above North Laguna and Emerald Bay, in Laguna Canyon (north of the Laguna Lakes), and on ridgelines. Artichoke thistle is an aggressive perennial weed native to the Mediterranean which is difficult to control due to its deep tap root and long-lived seeds. Seeds under the adult plants have been known to remain viable in the soil for 2 to 5 years, and more deeply buried seed may remain viable for up to 20 years. In order to remove this species, the adult population must be controlled and the seed bank greatly reduced to prevent major re-infestations (The Nature Conservancy 1993, Hillyard 1987).



Artichoke thistle in the Guna Peak Zone

In the spring of 1994, the County of Orange Environmental Management Agency (now the Public Facilities and Resources Department), in coordination with The Irvine Company, The Nature Conservancy, and State Parks, began a large scale control program for artichoke thistle using selective herbicide (glyphosate) applications during the active growing season (March - June) on targeted stands. These herbicide applications have been successful in reducing the spread of artichoke thistle. Since the thistle seed bank can remain viable for approximately five years, continual re-applications

of herbicide will be needed until major infestations are significantly reduced. Long term monitoring and spot treatments will be required to prevent re-invasion of thistle to pre-treatment levels.

Mowing of seed heads (flower buds) prior to maturity can be employed in areas where the use of herbicides is unfeasible (i.e. steep terrain). This method will not in itself kill the thistle, but can be valuable in preventing seed set and stopping the spread of the plant.

Eucalyptus (*Eucalyptus rudis*) groves exist around Lake No. 1 and along Laguna Canyon Road north of Lake No. 1. Eradication of mature trees involves mechanical removal of the roots and above ground portion of the plant, or cutting and application of Rodeo® (or equal) herbicide. Young trees may be grubbed by hand. Eucalyptus understory duff and leaf litter should be removed to avoid further seed re-sprouting, and to eliminate the allopathic chemicals that prevent the growth of desirable plant species. Removal of eucalyptus should be done outside of the bird/raptor breeding season (March through July) and in consultation with an ornithologist.



Eucalyptus north of the Laguna Lakes

As part of the California Coastal Conservancy funded Laguna Lakes Restoration project, eucalyptus around the lakes are scheduled for phased elimination. The first phase of eucalyptus eradication was implemented by the County of Orange, EMA in fall of 1996. Over the next five years, the eucalyptus grove near Lake No.1 will be removed in 20%

increments. Willows and other native plant species will be planted around the lakes to replace the eucalyptus.

Pampas grass (*Cortaderia sellonana*) has invaded riparian areas along Laguna Canyon Road and the Laguna Lakes in the Laguna Laurel Zone. In addition, pampas grass has invaded the slope in the Stoneridge Zone along Laguna Canyon Road north of Big Bend. It appears this stand originated from wind blown seeds from an existing healthy stand on the east perimeter of Bark Park on Laguna Canyon Road. Removal of mature pampas grass involves cutting or mowing the upper plant material and mechanically removing the root ball with a backhoe or similar digging device. If digging up the rootball is not feasible, the cut plants should be sprayed with non-surfactant herbicide (Rodeo® glyphosphate or equal). Small plants (± three feet diameter) can be removed by shovel or similar hand-digging device. All seed heads should be cut, bagged and removed from the park.

Giant reed (*Arundo donax*) is found in Laguna Canyon, especially around Lake No. 3. Giant reed is the primary weed species of concern in riparian habitats, where it readily colonizes disturbed floodways, thereby inhibiting the re-establishment of native riparian species. Left uncontrolled, giant reed quickly converts a natural riparian community to purer and purer stands of reed. This results in the creation of an extreme fire hazard and the loss of many native plant species that depend on the riparian community for survival.

Effective control of giant reed requires a combination of mechanical and chemical control measures. The cut and paint technique involves cutting the reed near the base during the active growing season and then painting the reed with Rodeo® or equal herbicide systemic within five minutes after cutting. The cut material cannot be left in place because it is capable of sprouting. The cut material must be legally disposed off-site or shredded. The Laguna Lakes Restoration Project calls for the removal of giant reed and replanting with willows.

Tree tobacco (*Nicotiana glauca*) is mostly found in disturbed areas (e.g. adjacent truck trails, eroded or other disturbed areas). The seeds, flowers and foliage of this species are poisonous to humans. Following the 1993 Laguna Fire, this exotic increased its distribution in many of the canyon bottoms, especially lower Laurel Canyon (Laurel Canyon Zone) and Willow Canyon and the alluvial soils along Laguna Canyon Road in the Stoneridge Zone. In addition, tree tobacco has invaded many burned stands of prickly pear cactus, reducing stand recovery. TNROC has received funding from CDFG to initiate control of tree tobacco within recovering cactus stands.

Eradication of this species involves bagging and removal of seed heads, cutting or removal of entire plants, and/or herbicide spraying of new growth following cutting.

Castor bean (*Ricinus communis*) exists in the park's ruderal grassland areas along Laguna Canyon Road (especially in the Stoneridge Zone across from Bark Park) and in Emerald Canyon (Guna Peak Zone). Eradication involves herbicide spraying of foliage, or mechanical removal (including primary roots). Due to the long-lived abundant seed bank

around the adult plants, continual spraying or hand removal is required to prevent further reestablishment. This plant presents a danger to children due to its poisonous seeds.

Black mustard (*Brassica nigra*) is a naturalized annual that occupies large areas of existing non-native grasslands in the park, especially on coast-facing slopes. Mustard can form dense 3-8 foot tall stands with few other native plants occupying these areas. Potential control methods include disking or mowing plus herbicide spraying (prior to plants setting seed). TNC is currently testing the effectiveness of soil solarization and/or repeat spring controlled burns in reducing the seed bank to controllable levels (The Nature Conservancy 1993).

Exotic Plant Control Recommendations

- Within three years following County of Orange Board of Supervisors approval of this RMP, the HBP Natural Resource Specialist shall develop an Exotic Plant Management Plan (EPMP) in consultation with TNC, TIC, and TNROC Resource Manager. The EPMP shall: identify and prioritize exotic plants of concern; identify threats posed by each exotic species; identify alternative methods of control; assess current exotic plant control programs; and, develop methods for monitoring and evaluating exotic control activities.
- The EPMP will also recommend five year objectives and a budget for exotic plant control activities to be approved by the CGA and the TNROC Board.
- The HBP Natural Resource Specialist and HBP Park Ranger shall establish a volunteer exotic removal team to help offset removal costs and foster a sense of stewardship. This volunteer team's activities will be coordinated by the HBP Natural Resource Specialist.
- The HBP Natural Resource Specialist and HBP Park Ranger shall coordinate exotic plant control activities with State Parks, CDFG, The Nature Conservancy/TIC and CDFG.
- The distribution and density of exotic plants will be mapped and incorporated into the LCWP GIS.

Assist adjacent partners (TNROC, TNC, CDPR, CDFG) in locating funding for exotic plant control.



IX. INVASIVE AND PEST
SPECIES CONTROL

IX. INVASIVE AND PEST SPECIES CONTROL

Several vertebrate pest species have a potential to impact the functioning of LCWP's ecosystem, especially by directly affecting one or more NCCP/HCP "target and identified species". Within LCWP these pest species include brown-headed cowbird (*Molothrus ater*), and small mammal species known as "meso-predators" such as opossum (*Dipelphis virginiana*). Two other small mammals indigenous to LCWP are the raccoon (*Procyon lotor*) and striped skunk (*Mesphitis mephitis*). These mammals can become a problem in the absence of their natural predators. While not known to exist in LCWP, potential other pest species include non-native red fox (*Vulpes fulva*) and feral dogs and cats.

In addition, two introduced amphibian species-- bullfrogs (*Rana catesbeiana*) and African clawed frogs (*Xenopus laevis*)-- occur at Laguna Lakes. Through predation, these non-native frogs can cause severe ecological damage by consuming declining native frogs and fish populations in California (Dick 1988).

Cowbirds are nest parasites of many sensitive bird species, especially the California gnatcatcher (*Polioptila californica californica*). This can cause high levels of nest failures. Cowbird trapping has proven to be an effective tool in successful management efforts toward the gnatcatcher and least Bell's vireo (*Vireo bellii pusilus*) in Southern California.

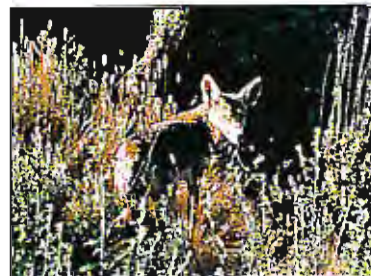
The Transportation Corridor Agency (TCA) is obligated through the San Joaquin Transportation Corridor (SJHTC) Biological Opinion on the California gnatcatcher to operate 20 cowbirds traps in the San Joaquin Hills in perpetuity. The TCA can also transfer this obligation to a non-profit organization with USFWS permission. An endowment would accompany the transfer. TCA's cowbird trapping and removal program has been on-going since 1993.



Cowbird trap

The TCA cowbird traps are maintained at various locations in LCWP, including two traps along Laguna Canyon Road, and one trap along El Toro Road. In 1996, a total of 481 cowbirds were captured and removed through TCA's trapping program.

The above mentioned meso-predator pest species can cause high levels of adult and juvenile mortality for sensitive reptile species including the orange-throated whiptail lizard (*Cnemidophorus hyperthrus beldingi*), as well as a high rate of nest failures for sensitive bird species including gnatcatchers and cactus wren. Since the coyote (*Canis latrans*) is the main predator of these meso-predator species, maintaining a healthy coyote population is important in controlling meso-predator populations at acceptable levels.



Coyote

An insect pest species which could have a devastating effect on the lizard populations is the Argentine ant. Argentine ants are more dependent on moisture than the native ant species. Argentine ants could replace native ant species if allowed invade the park. Native harvester ants are the main food item of the San Diego coast horned lizard. Argentine ants could invade the park through irrigated fire breaks or infested container plant stock.

Invasive and Pest Species Control Recommendations

The following management program shall be implemented to control **brown-headed cowbirds**:

- Incorporate the following features to make the park less desirable to cowbirds:
 - cover trash cans so that food is not accessible
 - keep the parking lots and other equestrian use areas clean of horse droppings
 - continue to prohibit cattle grazing within LCWP boundaries (grazing practices attract cowbirds)
 - no turf shall be planted in LCWP (turf attracts cowbirds)
- Monitor the success of the SJHTC cowbird trapping program. Following the conclusion of SJHTC program, determine the level of cowbird parasitism through gnatcatcher nest monitoring. If nest parasitism is excessive or cowbird population levels are unusually large, then implement a cowbird trapping program.
- Inform park users of the location and reason for the cowbird trapping program through educational signage.

The following management recommendations pertain to the control of **meso-predators and other pest vertebrate species**:

- Monitor populations of pest vertebrate species (particularly at the urban/park interface) and determine if control efforts are needed to protect sensitive species.
- All pest control activities shall be coordinated by the resource monitor and animal control officers, and recorded to determine the initial pest densities and the changes in population following the control effort.
- Exclude domestic pets from the park by enforceable regulations. Annual inspections of fuel modification zones and park boundaries by park personnel should be made on an annual basis for feral domestic animals. If feral animals are observed in the park, the Natural Resource Specialist shall notify animal control officers to trap and remove them.

The following management recommendations pertain to the control of **Argentine ants**:

- Avoid long-term irrigation in fuel modification zones. Only use irrigation where required to establish native and fuel modification plantings.
- All container plant materials imported into the park shall be free of Argentine ants. Specifications for revegetation or habitat enhancement projects shall mandate that suppliers of container stock shall certify that such stock is free of Argentine ants.
- If Argentine ant colonies are discovered in the park, the HBP Natural Resource Specialist shall consult with the county agricultural commissioner or vector control to determine the most environmentally appropriate removal method.

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X. HABITAT ENHANCEMENT &
RESTORATION PLAN

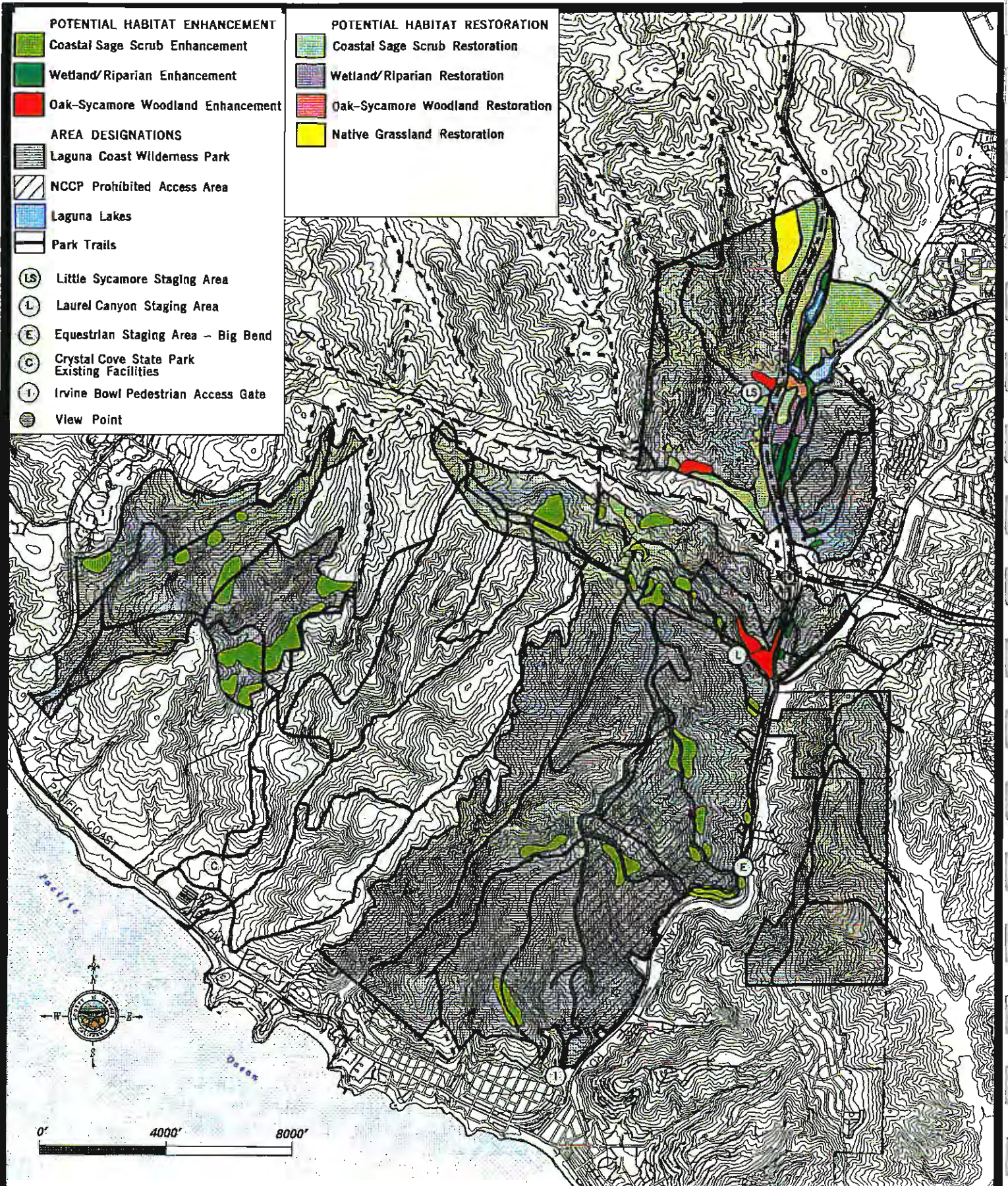
X. HABITAT ENHANCEMENT & RESTORATION

Habitat restoration is defined as the process of intentionally altering a degraded site to establish a defined indigenous, historic ecosystem. The goal of restoration is to emulate the structure, function, diversity and dynamics of the specified ecosystem. There are many opportunities in LCWP for the restoration of currently degraded habitat areas dominated by annual grasses, mustard and artichoke thistle. These areas likely supported functioning native habitats such as native grassland, coastal sage scrub, chaparral, or woodland historically, but have been converted to non-native grasslands as a result of several factors including agricultural disking, cattle grazing, and an unnatural fire regime. Many of these areas, although dominated by annual grasses, continue to provide important habitat for a variety of important wildlife species. However, there are also many cases where aggressive exotic plant species such as mustard or artichoke thistle dominate, providing very little habitat value and serving as a weed seed source for adjacent intact habitat areas. The restoration of these degraded areas, particularly where they abut target species habitat, will improve the biodiversity within LCWP by increasing available habitat for target species, eliminating source populations of exotic species, and creating habitat linkages between otherwise fragmented stands of habitat.

In LCWP, there is also the need to increase the oak/sycamore woodlands and riparian/wetland habitat areas around the Laguna Lakes and the many tributaries and intermittent streams in the park.

In 1993, The Nature Conservancy prepared *The Irvine Company Open Space Reserve Habitat and Restoration Plan* for The Irvine Company for lands within LCWP and adjacent open space (see Appendix G). This document includes guidelines for habitat enhancement and restoration, as well as locations of potential habitat restoration and enhancement areas. As a starting point, the LCWP RMP has adopted The Nature Conservancy's recommendations for habitat restoration and enhancement areas. Since this RMP is not a static document, restoration and enhancement practices and targeted areas will reflect adaptive management practices over time. See Exhibit 16 for the Habitat Restoration and Enhancement Map.

Native habitats will be restored in areas with proper site characteristics (i.e. soil type, slope aspect, and micro-climate conditions) suitable for the particular habitat type. Coastal sage scrub restoration areas typically include well drained sandy or loam mesic soils, and south/west facing slopes. Oak woodland will typically be restored in areas with deep mesic well drained soils, on north-facing slopes and valley bottoms, as well as along alluvial drainage areas. Riparian habitats will be restored where soils are somewhat deep loamy to clayey, along drainage courses (such as Laurel and Little Sycamore Canyons) or around springs, ponds, or the Laguna Lakes. Native grassland will be restored in areas with moderately deep soils with loam to clay textures on gentle slopes (e.g. ridges, and wide canyon side slopes).



LAGUNA COAST WILDERNESS PARK

COUNTY OF ORANGE
PUBLIC FACILITIES and RESOURCES DEPARTMENT
HARBORS, BEACHES AND PARKS

HABITAT ENHANCEMENT
AND RESTORATION
Exhibit 16

Habitat Enhancement and Restoration Recommendations

- In consultation with TNC, TIC and TNROC Resource Manager, HBP shall prepare a long-range Habitat Enhancement and Restoration Plan for LCWP within three years following County of Orange Board of Supervisors approval of this RMP. This HERP will identify potential areas for native grassland, coastal sage scrub, and riparian enhancement areas. The HERP will also provide restoration strategies and prioritize restoration activities based on NCCP/HCP guidelines.
- Enhancement and Restoration activities will be implemented on a project by project basis per the above mentioned HERP using best restoration/management practices, and as funding becomes available. Restoration plans will be developed by a qualified restoration specialist in coordination with the HBP Natural Resource Specialist.
- Habitat enhancement and restoration activities shall be monitored and annual monitoring reports produced with written and photographic documentation of each restoration/enhancement site. The Habitat Enhancement and Restoration Map ____ (Exhibit 16) shall be updated on an annual basis, showing existing and future restoration and enhancement areas.

The following are recommendations for **habitat enhancement** activities to be considered when developing the HERP for LCWP:

- Habitat enhancement priority will be given to existing native habitats that are impacted by invasive plant species (e.g. artichoke thistle and non-native grasses) and pest animal species (i.e. cowbirds) (NCCP/HCP 1995).

Recommendations for **habitat restoration** activities to be considered when developing the HERP for LCWP include:

- Restoration efforts should focus on increasing habitat for target species and other sensitive species in locations that will enhance key habitat linkages and provide large blocks of habitat (The Nature Conservancy 1993 and NCCP/HCP, 1995). First priority habitat restoration should involve conversion of degraded non-native grassland to coastal sage scrub on sites contiguous with target species habitat and other large patches of healthy native vegetation (The Nature Conservancy 1993 and NCCP/HCP, 1995). Second priority should be given to restore large scale disturbed sites not presently surrounded by abundant target species or large patches of healthy native vegetation (e.g. non-native grasslands adjacent to development areas) (The Nature Conservancy 1993 and NCCP/HCP, 1995).

Lower preference will be given to sites which have strong potential for natural succession to native habitat (The Nature Conservancy 1993 and NCCP/HCP, 1995).

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XI. MONITORING PROGRAM

XI. MONITORING PROGRAM

As required by the NCCP/HCP, all resource management activities will be monitored to directly assess their effectiveness in meeting the overall goal of the Orange County Nature Preserve (i.e. promoting biodiversity, increasing habitat for target species, and increasing habitat value). A baseline data collection will precede all management activities, and if feasible, should be collected for at least two years prior to the proposed management action. Baseline data reflects the condition before, or in absence of, an activity (NCCP/HCP 1995).

Direct monitoring of target and identified species will be the responsibility of the TNROC manager, and funded by the TNROC board (NCCP/HCP 1995). Target and identified species monitoring and reporting will be performed as outlined in Section 5.4.2 of the NCCP/HCP.

Table 5 Resource monitoring activities described in the NCCP/HCP

<i>RMP Program</i>	<i>Baseline Data Required (yes/no)</i>	<i>Subsequent Monitoring</i>
Fire Management (prescribed burns)	yes	post-fire monitoring in years 1,2,4 &6
Habitat Restoration & Enhancement	yes	annual reporting for five years (each project)
Exotic Plant Control	yes	on-going, annual reporting
Pest Invertebrate Species Control	yes	on-going, annual reporting
Public Access/ Recreational Use	yes	on-going, annual reporting

Monitoring reports will be prepared for the following resource management programs:

- fire management (including all prescribed burns)
- habitat restoration & enhancement projects
- exotic plant control
- pest invertebrate species control
- public access/ recreational use

Monitoring Recommendations

General Monitoring Recommendations

- In order to better understand the status of target resources, the HBP Natural Resource Specialist will obtain all monitoring and inventory data and mapping from the TNROC Resource Manager.



Fire Management Monitoring Recommendations

- Support research being conducted by C DPR, and TNC on the effectiveness of fire as a management tool for exotic plant control.
- Assist TNROC in coordinating and collecting results from post-fire research studies being conducted by TCA, TNC, et al.
- Continue the post-fire vegetation monitoring by The Nature Conservancy et al. Use data to determine the rate of recovery for burned habitat types.



Exotic Plant Control Monitoring Recommendations

- Maintain data base and mapping of exotic plant locations, densities, and control efforts on the LCWP GIS. Use the LCWP GIS maps to document time, locations and types of exotic control methods (e.g. mechanical or hand removal, herbicide applications, and/or prescribed burns).
- Work with C DPR and TNC to standardize exotic plant control monitoring methodologies.
- Develop (with C DPR and TNC) feedback loop for relating results of monitoring efforts back into management goals, control methods and priorities

Invasive & Pest Invertebrate Species Control Monitoring Recommendations

- Monitor the success of the SJHTC cowbird trapping program. Following the conclusion of SJHTC program, determine the level of cowbird parasitism through gnatcatcher nest monitoring. If nest parasitism is excessive or cowbird population levels are unusually large, then implement a cowbird trapping program.
- Monitor populations of pest vertebrate species and determine if control efforts are needed to protect sensitive species.
- All pest control activities shall be coordinated by the resource monitor and animal control officers, and recorded to determine the initial pest densities and the changes in population following the control effort.
- Exclude domestic pets from the park by enforceable regulations. Annual inspections of fuel modification zones and park boundaries by park personnel should be made on an annual basis for feral domestic animals. If feral animals are observed in the park, the Natural Resource Specialist shall notify animal control officers to trap and remove them.



Gnatcatcher monitoring (device in hand is a tape recorder that is playing bird-calls to attract gnatcatchers)

Habitat Enhancement and Restoration Monitoring Recommendations

- Habitat enhancement and restoration activities shall be monitored and annual monitoring reports produced with written and photographic documentation of each restoration/enhancement site. The Habitat Enhancement and Restoration Map (Exhibit 15) shall be updated on an annual basis, showing existing and future restoration and enhancement areas.
- Monitoring of exotic plant control, prescribed fire, and restoration areas will entail establishment of permanent plots (quadrats or transects) where data will be collected on plant species cover (native versus non-native) density, and diversity. These plots will be replicated within treatment areas to ensure statistical viability.

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XII. REFERENCES

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