

LOS PEÑASQUITOS CANYON PRESERVE NATURAL RESOURCE MANAGEMENT PLAN

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PREPARED BY

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SUMMARY

The Los Peñasquitos Canyon Preserve Natural Resource Management Plan recognizes the value of natural resources in the Preserve and provides for protection, enhancement, and management of these resources. The Plan establishes guidelines for present and future use and maintenance of the Preserve while protecting the natural resources. Use of the Plan can help bridge what can sometimes be a gap between human activities and natural resource protection and management. This Natural Resource Management Plan helps to clarify expectations for natural resource protection in the Preserve and to facilitate the granting of any federal, state, or local permits required for projects in the Preserve.

Los Peñasquitos Canyon Preserve is a natural preserve within the City of San Diego, located 12 miles north of downtown San Diego between Interstate 5 and a point just east of Interstate 15. The Preserve currently comprises over 3,600 acres of public land and includes two coastal canyons, Los Peñasquitos and Lopez canyons; nine major vegetation communities (freshwater marsh, brackish marsh, vernal pools, pond, riparian woodland, oak woodland, coastal sage scrub, chaparral, and disturbed/non-native grassland/ornamental); evidence of human occupation for over 5,000 years; and an extensive trail system which accommodates hikers, bicyclists, and equestrians. Management of the Preserve must address problems of public use, misuse, and overuse; urban encroachment; presence of utility structures requiring maintenance and expansion; erosion from slopes, hillsides, and water courses resulting in sedimentation in riparian areas; and fire-fuel management.

Guidelines provided in the management plan for maintenance, Preserve usage, and development include the following practices: requiring prior maintenance crew "natural resource awareness" training; requiring all maintenance vehicles and personnel to stay within existing access roads and rights-of-way; minimizing erosion by using appropriate measures and best management practices; providing cultural resource protection and awareness; scheduling maintenance and development activities to avoid nesting/breeding seasons; constraining domestic animals; keeping preserve users on designated areas and trails only; inspecting trails regularly to identify areas requiring erosion control, maintenance, closure, and/or revegetation; providing buffer zones around sensitive areas; keeping all maintenance roads, trails, and minor parking areas unpaved; limiting water quality and

erosion impacts from new development.

For maintenance activities and new development which are unable to eliminate impacts and, thereby, result in natural resource disturbance, mitigation and restoration guidelines are outlined in this Plan. These guidelines include: no net loss of marsh, riparian, vernal pool, coastal sage, oak woodland, or chaparral habitat; mitigation and monitoring program requirement; revegetation projects using a variety of habitat types, vertical and horizontal plant diversity, and irregular borders; potential need for temporary irrigation; and use of appropriate native plants such as recommended in Appendix D.

Enhancement and restoration guidelines provided in the Plan include: the elimination of non-native, exotic plants and their replacement with native vegetation; a controlled or prescribed burn program to stimulate coastal sage and chaparral vegetation; the posting of "No Entry" signs for areas supporting sensitive plants and animals including sensitive bird species nesting sites and sensitive plant areas; and periodic monitoring of natural resources.

Suggested guidelines for interpretive and research opportunities include: use of signs with rustic appearance; limitation of interior park signs; placement of kiosks at major access locations for information and interpretive signs and brochures; installation of an interpretive facility focused on natural history and biological resources; and encouragement of research to gather unknown information on natural and cultural resources. The Plan also addresses implementation including identifying which agencies have jurisdiction over various projects and mitigation planning, implementation, and maintenance requirements. Responsibilities of various City departments, the County, Citizen Advisory Committee, and the local community groups associated with the Preserve are also discussed.

INTRODUCTION

PURPOSE

The purpose of this Natural Resource Management Plan is to provide guidance for the present and future development and maintenance of the Los Peñasquitos Canyon Preserve (Figure 1). This Plan is intended not only to protect and preserve the natural and cultural resources, especially sensitive resources, but also to allow safe and accessible use of the Preserve to meet the needs of the present and future community. The Natural Resource Management Plan (NRMP) also provides for maintenance of the quality of the Preserve's natural environment and associated visual enjoyment of the Preserve's open space.

A major goal of this NRMP is to demonstrate the City, County, and public recognition of the biological and cultural resources existing in Los Peñasquitos Canyon Preserve. This Plan is intended as a tool to protect resources while accommodating certain human activities in the Preserve. The NRMP highlights the hiking, bird-watching, educational, and aesthetic enjoyment provided by these resources and recognizes them as an integral part of the City's open space system.

The purpose, goals, and objectives of this Natural Resource Management Plan are established as long-range, 100-year goals. The guidelines outlined in the NRMP will be updated at least every ten years with input from the Los Peñasquitos Canyon Citizen Advisory Committee, Friends of Los Peñasquitos Canyon Preserve, San Diego County Archaeological Society, the City, the County, and trustee and resource agencies.

OBJECTIVES

The objectives of the Los Peñasquitos Canyon Preserve Natural Resource Management Plan are:

 To establish management practices and means for implementation which will foster cooperative joint County-City management to preserve and protect cultural and biological resources while providing for future recreational use, maintenance, and land use in the Los Peñasquitos Canyon Preserve;



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LOS PENASQUITOS CANYON PRESERVE LOCATION MAP



FIGURE

- 2. To enhance and restore native habitats in the Preserve;
- 3 To manage native wildlife species for their survival;
- 4. To identify and maintain important wildlife corridors;
- 5. To control erosion along trails and streambeds throughout the Preserve and further protect the watersheds;
- 6. To protect and maintain paleontological and archaeological resources;
- 7. To protect, restore, and maintain historical resources;
- 8. To facilitate public use which is compatible with the protection and preservation of the natural and historical resources, such as picnicking, hiking, and other low-intensity recreational activities;
- 9. To ensure all individual projects proposed within the Preserve meet federal, state, and local environmental standards and requirements;
- 10. To discourage illegal and unauthorized activities through an enforcement program;
- 11. To develop a reporting and enforcement procedure for preventing encroachment into Preserve property;
- 12. To conduct education, outreach, and research programs which increase public awareness of the unique natural and cultural resources within the Preserve;
- 13. To develop and maintain facilities that are compatible with the natural character of the Preserve;
- 14. To develop procedures for facility and utility maintenance and repair which are sensitive to species, habitat, and aesthetics;
- 15. To develop emergency response procedures which safe-guard sensitive species and habitat; and
- 16. To ensure that all improvements and maintenance activities consider and provide for public safety.

HISTORY

Los Peñasquitos Canyon Preserve is a natural preserve within the City of San Diego. As illustrated in Figure 1, the Preserve is located about 12 miles north of downtown San Diego, between Interstate

5, in the west, and a point just east of Interstate 15. The Preserve currently comprises over 3,600 acres of public land and includes two coastal canyons, Los Peñasquitos Canyon and Lopez Canyon; riparian, chaparral, and coastal sage scrub habitats; and a trail system which accommodates hikers, bicyclists, and equestrians. The following historical description is summarized from the draft Los Peñasquitos Canyon Preserve Master Plan, February 1986.

Stream erosion, beginning in the Pleistocene Ice Age (800,000 years ago), created Los Peñasquitos and Lopez canyons. Human usage of the Preserve's canyons is estimated to have begun over five thousand years ago. Remnants of the prehistoric La Jolla culture and more recent Kumeyaay Indian community activity in the Preserve can still be found. Although no physical evidence of their presence has yet been found, Luiseno Indian oral histories include references to activities in or near the Preserve.

In 1824, after receiving a Mexican land grant named the Rancho Santa Maria de los Peñasquitos, Francisco Maria Ruiz built his home near the eastern end of Los Peñasquitos Canyon. This home site is now referred to as the Los Peñasquitos Ranch House. Some consider his home to be the oldest residence in California (Figure 2). In 1834, Ruiz received an additional Mexican land grant, called El Cuervo, located adjacent and to the west of his existing grant (Ward, 1991).

In 1837, an ailing Ruiz conveyed his land grants to his grandnephew, Francisco Maria Alvarado, who cared for him until his death a few years later. Brigadier General Stephan Watts Kearney stopped at the Peñasquitos Rancho House after his defeat in the Battle of San Pasqual in 1846 (Ward, 1991).

In 1857, Alvarado's son, Diego, who lived in an adobe, referred to as the El Cuervo Adobe, at the western end of Los Peñasquitos Canyon, took over Ranch operations (Figure 2). Alvarado's daughter, Estefana, married George Alonzo Johnson in 1859. The Johnsons expanded the Peñasquitos Ranch House in 1862 to accommodate their growing family. Diego Alvarado sold one-half of Rancho Peñasquitos to Johnson in 1869 (Ward, 1991).

Financial problems caused Johnson to forfeit his share of the Peñasquitos Rancho in 1880. Eventually, the land was bought by Colonel Jacob Shell Taylor whose plans for it eventually failed



ROPOSED FACILITIES







and he sold it to Adolph Levi in 1889 (Ward, 1991).

In 1910, Charles Mohnike bought Rancho Peñasquitos from Levi and built an adobe east of Peñasquitos Ranch House at a location east of the modern Black Mountain Road (Figure 2). He used the Ranch House as a bunkhouse for ranch hands (Ward, 1991).

Rancho Peñasquitos continued to be managed as a ranch under several other owners until Peñasquitos, Inc. bought the entire Rancho in 1962 with plans for residential development. The County and City of San Diego, however, proposed the area for a regional park. A Land Acquisition Report for Los Peñasquitos Regional Park recommended acquisition of 3,400 acres of Los Peñasquitos Canyon for park and open space use. In 1974, the County purchased 193 acres in the canyon toward this goal. In the mid-1970's, the City of San Diego also began the process of acquiring land for parkland dedication as part of the Los Peñasquitos Canyon Preserve. Currently, this process is still ongoing and new parcels are acquired periodically as funding and opportunity permit. In 1975, Peñasquitos, Inc. prepared the <u>Peñasquitos Regional Park and Land Use Plan</u>, which, in addition to a proposed pattern of development and open space, identified Lopez Canyon as a reasonable extension of the Los Peñasquitos Canyon system.

The Los Peñasquitos Canyon Preserve Task Force was created in 1977 to facilitate City and County coordination in planning, acquisition, and implementation of the proposed regional park. Members are appointed from the San Diego City Council and County Board of Supervisors. A Citizen's Advisory Committee was appointed by the Task Force to provide public input during the planning process. Additionally, this Committee provides recommendations on specific Preserve management issues and policies to Preserve management personnel, as needed.

The Interim Management and Development Plan for Los Peñasquitos Canyon Preserve, August 1980, was published by the Task Force Citizen's Advisory Committee, and City and County Park and Recreation departments. The Interim Plan was used as a policy document for management of the Preserve until a final comprehensive Master Plan could be adopted. Goals for preservation and protection of natural resources and, secondarily, specific accommodation for recreational activities are included.

The draft Master Plan for Los Peñasquitos Canyon Preserve currently is in the process of obtaining City Council approval. The Master Plan is the result of extensive public input and compilation of all existing data on current Preserve conditions.

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AGENCY JURISDICTION AND APPLICABLE CITY AND COUNTY PLANS

AGENCY JURISDICTION

A number of agencies have direct or indirect involvement with land use planning, resource protection, and permit approvals for Los Peñasquitos Canyon Preserve. The primary agencies and their degrees of involvement with activities in the Preserve are as follows:

<u>City of San Diego</u>: The day-to-day management of the majority (about 3,400 acres) of Los Peñasquitos Canyon Preserve is the responsibility of the Park and Recreation Department, operating under the authority of the City Manager. The Park Development and Open Space Division of the Park and Recreation Department performs tasks such as trash removal, maintenance of all physical structures (such as fences, restrooms, signs, and trails), and brush management. Additionally, this Division provides two preserve park rangers, presently headquartered at the Los Peñasquitos Ranch House, whose primary responsibilities include enforcement of City and State regulations, interpretive activities, and coordination of volunteers. The Park and Recreation Department also has a Natural Resource Management Section whose primary purpose is the protection and management of environmental resources within the City's natural parks and open space.

The Development Services Department's involvement is centered around the permitting and environmental review process. Any individual project proposed within or adjacent to the Preserve is required to meet the Resource Protection Ordinance (RPO), Hillside Review Overlay Zone (HR), California Environmental Quality Act (CEQA), and City environmental and construction standards and requirements. Agencies and the public become involved with individual project proposals during this process. For projects requiring permitting, the Development Services Department serves as a liaison between the City, public, and agencies. Other City departments involved in the Preserve include the Police, Fire, Engineering and Capital Projects (erosion control; urban runoff), General Services (roadways), and Metropolitan Wastewater departments.

County of San Diego: The County of San Diego owns 277 acres within the Preserve. The majority

of this area is associated with the Los Peñasquitos Ranch House area (169 acres). The second area (29 acres) is on the Del Mar Mesa. The remaining area (79 acres) is comprised of two small parcels in the western portion of the Preserve (on the ridge of the nose of Lopez Canyon and along Sorrento Valley Boulevard). The County Ranger is headquartered at the ranch house and oversees the County property, adobe, and ranch house area within the Preserve. At the present time, the County actively manages the ranch house area and is developing an Interpretive Master Plan for the Los Peñasquitos Ranch House. In addition, the County of San Diego Health Department performs monthly tests on water as part of their vector control program.

<u>U.S. Army Corps of Engineers</u>: The Army Corps of Engineers (CORPS) exercises permit authority for projects which require permits under Section 404 of the Clean Water Act. Projects which involve the discharge of fill or dredge material into waters of the United States must secure a Section 404 permit. It is unlikely, however, that the type of project proposed in Los Peñasquitos Canyon Preserve would require a CORPS permit. The CORPS would need to be consulted for a determination on an individual project's need for a CORPS permit.

<u>U.S. Fish and Wildlife Service</u>: The U.S. Fish and Wildlife Service (USFWS) acts in an advisory role with projects requiring a CORPS or City of San Diego permit. The USFWS also serves other permitting agencies in an advisory capacity. Of particular importance to the USFWS is the status of plants and animals on the List of Endangered and Threatened Species, which are protected under the federal Endangered Species Act of 1973. The USFWS also is concerned with protecting bird species covered by the Federal Migratory Bird Treaty Act of 1916, and as amended in 1994.

<u>California Coastal Commission</u>: The western half of the Preserve lies within the Coastal Zone as defined by the California Coastal Act of 1976. The California Coastal Commission (CCC) is responsible for issuing and administrating permits in compliance with the Coastal Act. In addition to protection of natural and coastal resources, the CCC considers maintenance of public access to coastal zones as one of their primary directives.

<u>California Department of Fish and Game</u>: Involvement of the California Department of Fish and Game (CDFG) can occur in three ways. For projects involving alteration of a streambed, a permit

must be issued pursuant to Section 1601-1606 of the CDFG Code. The second type of involvement would occur when the CDFG serves in an advisory capacity to the CCC and the City of San Diego. The third area of involvement relates to plants and animals on the California List of Endangered or Threatened Species which are protected under the California Endangered Species Act.

<u>California Water Quality Control Board</u>: The State Water Quality Control Board (SWQCB) through its local office, the Regional Water Quality Control Board (RWQCB), administers National Pollutant Discharge Elimination System (NPDES) permits. For any future sewer or water lines disturbing five acres or more within the Preserve, an NPDES permit would be required.

CITY PLANS APPLICABLE TO LOS PEÑASQUITOS CANYON PRESERVE

Currently, policies in one Council adopted General Plan Amendment (Future Urbanizing Area Framework Plan) and six Council approved community plans (Rancho Peñasquitos, Carmel Valley, Sorrento Hills, Mira Mesa, Miramar Ranch North, and Sabre Springs) directly or indirectly affect Los Peñasquitos Canyon Preserve. The Torrey Pines Community Plan is currently undergoing approval process for the September 1994 draft which will also have an indirect effect on the Preserve. The draft Los Peñasquitos Canyon Preserve Master Plan is currently going through the City approval process and will also seek County Board of Supervisors approval. The Master Plan addresses the entire Preserve. The community plans describe planning policies for communities adjacent to the Preserve. The Future Urbanizing Area, a large undeveloped area between the Carmel Valley and Rancho Peñasquitos community plan zones, does not have a community plan at the present time but was included in the General Plan through an amendment in the form of the Framework Plan. The draft Multiple Species Conservation Program (MSCP) is currently going through the approval process and incorporates the Los Peñasquitos Canyon Preserve in its preserve system.

<u>Draft Los Peñasquitos Canyon Preserve Master Plan (1995)</u> outlines facilities and activities approved for the Preserve, as well as priority acquisition areas and long-range management programs. The section, <u>Environmental Management</u>, provides the basis for this Natural Resource Management Plan. A summary of Master Plan environmental management recommendations is provided in this management plan as follows:

- For protection of natural resources, ... the following activities should be prohibited:
 - Private motorized vehicles, especially off-road vehicles, except within designated parking areas or as authorized by permit;
 - Smoking, camp and cooking fires, except within designated picnic or other authorized areas;
 - No dogs, except dogs within main activity areas and these dogs should be on leash at all times;
 - Damage and vandalism to vegetation;
 - · Collection and/or removal of Preserve plants, animals, or archaeological artifacts;
 - · Feeding of wild animals;
 - · Leaving trash or food anywhere other than in designated receptacles; and
 - Any human activity within designated wildlife corridors, unless otherwise posted.
- Posting of regulations at all access points supplemented by interpretive programs.
- Monitoring program to assess environmental impacts resulting from human use.
- Supervising park ranger, with assistance from local specialists, should inspect the entire Preserve approximately four times a year.
- Photographs and notes of each inspection trip should be retained for comparative evaluation with previous surveys. Sites used for special permit activities should be inspected after each event.
- Findings triggering corrective action include:
 - · Destruction of habitats through human activity or overuse;
 - · Disappearance of wildlife species;
 - Increases in small animal populations;
 - Infestations of exotic or undesirable plant materials;
 - · Compaction or erosion;
 - Damage to or removal of vegetation; and
 - Deterioration of sensitive species.
- Removal of invasive non-native plant species.
- Park attendance during different seasons should be surveyed and the use levels of different activities recorded to identify any clear correlation to impacts.
- Reduction in human activity in an impacted area.
- Trails may be closed alternately or seasonally, and key habitats may be posted as off-limits during the breeding season.
- Landscape guidelines in the Master Plan include: 1) planting in undeveloped areas as well as developed sites and transition zones; 2) planting in undeveloped natural areas is primarily

for erosion control or repair of damaged sites; 3) no aggressive exotics which spread freely should be planted; and 4) planting of approved species should be by direct seeding or liners and should be done at the beginning of the rainy season.

The Master Plan provides a list of suggested plants appropriate to the various biotic communities, which is included later in this management plan as Appendix D.

<u>The North City Future Urbanizing Area Framework Plan</u> (adopted in February 1995) provides specific implementing guidelines for a large undeveloped area north of Los Peñasquitos Canyon Preserve. The Framework Plan acts like the General Plan for the area until specific community plans are developed. For development adjacent to significant natural areas, pertinent implementing principles are summarized as follows:

- ... the least possible alteration of the natural drainage pattern, and minimize impacts to downstream properties;
- Protect existing drainageways from encroachment... through use of setbacks/buffers; Development in hillside areas should conform to the unique natural setting of each area and site...;
- Development pattern in hillside areas should be designed so structures do not stand out prominently when seen from a distance;
- Development should not obstruct public views;
- ... disturbed areas on a site which are to be retained as open space shall be contoured to blend in with natural slopes and shall be revegetated with native plants;
- New development required to minimize erosion; and
- Development adjacent to ridges and bluffs shall minimize visual impacts to these topographic features through setbacks and landscaping.

Guiding and implementing principles summarized for open space include:

- Conserve biological diversity by setting aside large areas of open space/habitat, linked with corridors...;
- Preserve floodplains and significant topographic features...;
- ...provide for some low-impact forms of recreation such as walking, bicycling, and nature watching;

- Changes to identified linear corridors...must be in as much a direct line to major open space areas as the previous location, with no bottlenecks, winding curves, or turns that might inhibit wildlife movement...if native habitat not present or degraded the corridor must be revegetated...and ...sensitive resources should be preserved on site;
- All linear corridors a minimum of 1/8 mile in width;
- Functions of wildlife movement and/or groundwater discharge are sufficient for inclusion of an area as designated open space even when sensitive resources are not preserves;
- Habitat Protection and Biological Buffer areas will be kept free of non-local native vegetation. Local native vegetation, if unavailable onsite, can be obtained from sites with similar soils, aspect, meso- or micro climates as those onsite, preferably from nearby local sites within a 10-mile radius of the site.
- Prohibited uses within Habitat Protection Areas include most structures; any new facilities that create barriers between open space units or degrade the quality of the habitat; and active recreation facilities, including golf courses and parks (passive recreation permissible);
- Prohibited uses within Biological Buffer areas include most structures; any new facilities that create barriers between open space units; active recreation facilities; and brush management areas;
- Wildlife corridors shall not have trails and recreation allowed within them where activity might impede animal movement...Recreational trails are permitted in buffer and transition areas...;
- No concrete, asphalt, riprap, or other channelization structures will be allowed within the open space system's drainage areas or floodplains;
- Water retention areas and ponded runoff filtering systems may be allowed in portions of the open space system. No water entering the open space system through storm water runoff pipes and facilities shall enter at a speed causing erosion or other detrimental effects...;
- Roads which cross the 100-year flood plain shall be constructed above grade, using bridge or causeway structures with accommodation made for wildlife movement; and
- Roads shall be narrowed when they cross the open space system

<u>Rancho Peñasquitos Community Plan (adopted June 1993)</u> addresses the area along the northeastern boundary of the Preserve from Interstate 15 to just west of Camino Ruiz. The Plan recognizes the Preserve as an important open space system with opportunities for passive recreational use. One of the key concepts mentioned is to "Balance development with the preservation of the community's natural resources."

Planning recommendations to minimize impacts to the Preserve and natural areas include:

- Use of native plants;
- Removal of invasive plants;
- Preservation of wildlife corridors (remain wide, provide adequate cover, and protect from excessive noise, night lighting, and domestic animals);
- Sensitivity to environment;
- Design to avoid incremental contributions to air and water pollution, natural fire hazard, soil erosion, siltation, slope instability, flooding, and severe hillside cutting and scarring;
- Predator control dogs and cats should be kept out of Preserve;
- Buffer zones of 50 feet where development backs up against open space. (Community Plan spells out the layers of the buffer zone.); and
- Design drains entering Los Peñasquitos Canyon to be nonerosive, extend to natural drainage bottom, and publicly-owned drains leading to the Preserve to ensure proper maintenance.

Recreation recommendations include:

- Preserve linked to Black Mountain Park by a system of hiking and walking trails;
- Preserve bridle paths completed to connect with countywide riding system; and
- Off-road vehicles on public property and designated open space prohibited.

Recommendation concerning Open Space include:

- Retain viable connected open space systems;
- Maintain all open space containing biologically sensitive habitat in its natural state;
- Prohibit encroachment and all impacts of adjacent development on areas designated open space;
- Encourage retention of wildlife habitat value in connected open space systems by providing signs indicating "pedestrian use only" and "no pets permitted" at limited access points which direct moderate and high impact users to appropriate community areas and visual access using overlooks; and

 Encourage moderate impact use (i.e., jogging, pet walking, and horseback riding) of open space with reduced long-term biological value by providing well-marked, convenient access points with signs indicating "area intended for people with pets, for mountain biking, for hiking, for jogging, and for horseback riding", by providing environmental outreach programs, and by providing education of residents through homeowners brochures.

<u>Carmel Valley Community Plan (adopted February 1975)</u> covers the community adjacent to the Preserve at its northwestern corner. This community plan was adopted before Los Peñasquitos was designated a Preserve. One of the major goals, however, is the desire to preserve the natural environment.</u>

Sorrento Hills Community Plan (adopted December 1994) addresses the community adjacent to the northwestern end of the Preserve. Key policies listed include "sensitivity toward open space and wildlife habitat and a reflection of underlying landform'. The Plan designates 'Industrial Use' adjacent to the Preserve.

Development guidelines recommended in the Plan include:

- Creation of plans avoiding negative impacts to the Preserve;
- Contour grading in areas visible from Preserve to emulate natural topographic features;
- Low profile buildings along mesa edge;
- Earthtones used on structures along mesa edge;
- Setbacks from rim of canyon to minimize visibility from Preserve;
- Screen structures within viewshed from canyon floor using vegetation, berms, and building orientation techniques;
- Minimize cut and fill slopes;
- Employ permanent energy dissipators;
- Detention basins to control runoff;
- Stabilization of all graded slopes prior to the rainy season;
- Hydroseed and plant slopes adjacent to natural areas with native vegetation compatible with existing vegetation; and

• Manufactured slopes adjacent to the Preserve employ special grading techniques, such as minimizing slope heights, simulating natural landforms, and integrating open space.

Recreation recommendations include:

- Providing a pedestrian/jogging trail system with access to Los Peñasquitos Canyon Preserve and linking trails in Carmel Valley Community Planning Area (The proposed draft plan update (1995) includes an equestrian trail system within the proposed street right-of-way);
- Limiting access points into open space area to control human intrusion into sensitive environmental areas within the Preserve; and
- Providing signage for trails to direct pedestrians.

Recommendations in the <u>Open Space and Resource Management Element</u> of the Community Plan include:

- Preserve areas of high resource value;
- Establish a management plan for community environmental resources to encourage environmentally sensitive development; and
- Preserve, protect, enhance, and restore all natural open space and sensitive resource areas, including Los Peñasquitos Canyon Preserve.

Torrey Pines Community Plan (draft September 1994) covers an area west of the Preserve including Los Peñasquitos Lagoon divided from the Preserve by Interstate 5. The existing Community Plan was approved in 1973 prior to establishment of Los Peñasquitos Canyon Preserve. An update to the Plan is in draft form and currently undergoing the approval process. The Preserve is not addressed directly but some of the goals related to protection of the Lagoon apply to the Preserve which is the Lagoon's major watershed.

The Open Space Element of the Community Plan states the following goals:

- Designate and preserve as open space the exceptional topography and ecosystem in this community;
- Encourage the development of adjacent properties to be undertaken in a manner that is visibly and physically compatible with the natural environment; and
- Permit only those recreational activities which do not have a negative impact on Lagoon

ecosystems.

<u>Mira Mesa Community Plan Update (adopted in 1981)</u> provides planning guidelines for the Mira Mesa community along the entire southern boundary of the Preserve Plan goals related to the Preserve include preservation and enhancement of canyon's natural and cultural resources while allowing recreational and educational uses by public as a secondary objective and preservation of the integrity of environmental resources, significant public views, and the topography.

Development guidelines recommended in the Plan include:

- Minimize visibility of residential development adjacent to Preserve;
- Protect public health and safety by restricting development in areas of high fire risk or subject to flooding;
- Design construction in sensitive habitat or designated wildlife corridors to impact least amount of sensitive area feasible;
- Use bridges, elevated causeways, etc., safe for wildlife in place of culverts and fill to facilitate wildlife crossings;
- No exotic or invasive plant species planted within or adjacent to existing sensitive habitat;
- No irrigation within 200 feet of a tree trunk;
- No change to watershed/drainage area of oak woodlands that could affect surface or subsurface hydrology;
- Design adjacent development to avoid erosion, sedimentation, and other potentially damaging impacts;
- Establish a minimum 100-foot wide buffer of upland habitat adjacent to riparian habitat;
- Discourage any use that would adversely affect the Preserve except for a reasonable number of pedestrian access points, rest areas, and other compatible facilities; and
- Carefully plan parking and access to preserve rural setting and minimize potential conflicts.

Recommendation in the Community Plan related to recreation include:

- Development of trail systems throughout the Preserve;
- Concentrate human activity around two major access points at each end and a central area for more passive use;

- Design trails or other recreational activities planned for resource areas to avoid damage to resources;
- Control access to designated trails/paths; and
- Limit public access in environmentally sensitive habitats to low-intensity recreational, scientific, or educational use.

Open space recommendations outlined in the Plan include:

- Preserve sensitive resources, wildlife linkages, and natural drainage system; Provide linkages in regional open space system of interconnected canyons and hillsides;
- Restore or enhance with appropriate native plant community any sensitive habitat area degraded or disturbed by human development or activity;
- Develop resource management and monitoring plans for all preserved habitat areas;
- Preserve and protect remaining vernal pool habitat from human/vehicular damage, watershed encroachment, and urban run-off;
- Preserve and maintain the wildlife connections in a natural state;
- Monitor wildlife corridors to ensure they are free from obstruction; and
- Preserve floodplain and adjacent slopes of canyons and vernal pools in a natural state.

Miramar Ranch North Community Plan (adopted March 1980, amended 1991 and 1995) addresses the area south and east of the latest acquisition area in the far eastern portion of the Preserve. Community goals include: provide adequate park development, recreational facilities, and active use open space as needed for the community, with access to nearby regional parks; encourage the careful management of community environmental resources; provide broad areas of natural open space with linkages to one another and with adequate buffers to active use areas; support the retention of Miramar Lake and Los Peñasquitos Canyon Preserve as City resource-based parks, and develop adequate access to these parks from the community, integrate community-oriented parks, regional parks, other selected open space areas into an integrated system tied together by linkages which permit movement of wildlife; and encourage the preservation of significant environmental resources and minimize impacts on environmentally sensitive areas through the creation of special open space Recreation recommendations include:

- A pedestrian trail running from the Ranch Center should also provide access to Los Peñasquitos Canyon Preserve from the community;
- An equestrian trail connecting the preserve and the proposed Sabre Springs community through a portion of the Miramar Ranch North planning area is planned; an equestrian staging area may be appropriate at this connection because of ease of access;
- Pedestrian paths which travel through natural areas should be left in as natural a state as possible. Occasional seating benches are to be built along the pedestrian paths which have a steep gradient;
- Trails and active open spaces adjacent to development projects should be integrated with private open space, if feasible; and
- Pathways through native vegetation areas ought to be designed and improved as "hiking trails".

Recommendations concerning Future Institutional Site (Mercy Hospital Property), which became the

most recent Preserve acquisition, include:

- Any open space preserved in this area has the potential of adding to the Los Peñasquitos Canyon Preserve;
- A pathway on the south side of the site, running from the planning area westerly under Interstate 15 to Los Peñasquitos Canyon Park, should be provided;
- Any proposed dedication of open space should consider open space and circulation linkages with the regional park; and
- Peñasquitos Creek, which flows roughly east to west through the property, should be subject to detailed consideration in any proposed future project.

Open Space related recommendations include:

- Open space preserves are designed to protect existing high-interest biological species and/or transplanted species. Special care should be taken to preserve not only the natural habitat itself, but the conditions such as drainage and sunlight creating the habitat;
- No landscaping should be undertaken in special open space preserves;
- Preservation of the existing conditions is especially important for the riparian area next to Interstate 15,
- Dumping of fill and garbage should be prohibited, and trampling of vegetation on foot and by vehicles should not be permitted;

- Control measures may include signs, fencing, and close supervision of construction;
- To control use of off-road vehicles, appropriate design layouts, fencing, signs, and landscaping should be employed at open space access points and in open space areas where preservation of particular natural features is desired; and
- Any planting in passive open space areas should utilize drought-resistant, native species.

Recommendations concerning drainage include:

- During construction, runoff ought to be channeled to prevent erosion;
- Drainage facilities should be constructed concurrently with all grading activities, including artificial slopes;
- Runoff should be directed toward planned drainage facilities and away from artificial and natural slopes to the extent feasible;
- Access to drainage systems should be provided such that cleaning and maintenance are facilitated; and
- Drainage directed into the Peñasquitos Creek system should be non-erosive.

Sabre Springs Community Plan (adopted July 1982, amended 1987, 1988, and 1991)

provides specific recommendations and guidelines for the community north and east of the Preserves's latest acquisition in the eastern part of the Preserve. Community goals include: encourage careful management of community environmental resources through preservation of the creeks and a natural open space network and support of environmentally sensitive development; preserve environmentally sensitive portions of the community in as natural state as possible, while permitting relatively intense development on the remaining buildable acreage; protect biological resources to the extent possible through open space and creek habitat preservation; permit reasonable grading for development, while insuring the overall landform is retained and the graded areas are blended into the natural terrain; and preserve the overall drainage patterns of the planning area, while maintaining the water quality of the creek drainage basins.

Open Space recommendations include:

• Along the creekbeds and lakes, preserve open space areas to provide passive public recreation and visual enjoyment, as well as to protect flood ways, creek habitat, and selected

cultural resources from development;

- For areas characterized by steep slopes or geological instability, preserve open space areas in order to control urban form, insure public safety, provide aesthetic enjoyment, and protect biological resources;
- Insure the open space network within the community ties into the existing and proposed open spaces systems in adjacent communities;
- Peñasquitos and Chicarita Creeks, adjacent creek habitat, and the two lakes should be preserved as open space. Both the creeks and lakes are proposed for enhancement as visual and passive recreational resources;
- For the creeks, the intent is to limit or screen physical access to the water and habitat areas, in order to protect them as a resource;
- Most viewpoints, passive recreational areas, and natural open space areas should be deeded or dedicated to the City of San Diego; and
- Peñasquitos Creek should remain undisturbed throughout its length except in the vicinity of the two creek crossings of the southeast collector loop. At these locations, bridges should be constructed to cross the creek.

Biological resource management recommendations include:

- Provision of access corridors to the creek for fauna;
- Preservation of over half of the plan area in natural open space, including the creeks and steep or unstable hillsides; and
- Protection of natural hillside open space areas by prohibiting off-road vehicles, channeling foot traffic, regulating dumping and grading, and limiting landscaping.

Landform and grading guidelines include:

- Overall landform should be retained and graded areas should blend with natural terrain;
- Fill slopes should be minimized along the creek environments in order to minimize erosion from such slopes. Landscaping of such slopes should provide a "naturalized" interface with the creeks, where feasible. This is particularly important along Peñasquitos Creek; and
- Grading should be limited to what is necessary, such that creeks are avoided and native vegetation is preserved from trampling. The final earth surface of development sites should be watered and rolled to form a hardened, compacted cap of soil which will minimize dust and erosion.

Recommendations related to drainage include:

- The discharge end of each pipe (storm drains from surrounding development) should be designed with a structure that will prevent the erosion of the natural creek at the discharge point;
- Siltation into the creek should be controlled by designing temporary and/or permanent desilting basins into each drainage pipe system so as to remove all of settleable silt from drainage water before it reaches the creek;
- A detention basin may be constructed in the southern neighborhood park;
- Peñasquitos Creek should be maintained, to the maximum extent possible, in its natural drainage condition;
- During construction, runoff should be channeled to prevent erosion;
- Runoff should be directed toward planned drainage facilities, and away from artificial and natural slopes, to the extent feasible;
- Drainage into Peñasquitos and Chicarita Creeks should be carefully designed to minimize erosion and siltation; and
- The landscaping program requires the use of native or naturalized plant stock to the extent practicable. Because indigenous species adapt to the soils, water, and climate of the site, this landscaping approach should reduce both the volume of water necessary for irrigation and the requirements for fertilizers and pesticides. This would have the effect of decreasing runoff volume and pollutant concentrations.

Multiple Species Conservation Program (MSCP) allows the participating jurisdictions to maintain development flexibility by proactively planning a regional preserve system which can meet future public and private project mitigation needs. The program focuses on protection and management of habitats rather than on preservation efforts for one sensitive species at a time. Major objectives which affect the Los Peñasquitos Canyon Preserve include:

- Implement a program for the conservation and management of habitats of federally endangered, threatened, or key candidate species within the MSCP study area. (87 species are actually covered by the MSCP);
- Implement a preserve system which conserves viable habitat and provides for wildlife use and movement;
- Reduce the human-related causes of species extirpation within MSCP study area;
- Meet the applicable requirements of the Federal and State Endangered Species Act and the

NCCP Act; and

• Provide a plan for general public benefit through open space conservation and access to natural preserves for passive recreation and an improved quality of life.

MSCP hydrology guidelines include:

- Water quality monitoring; and
- Potential remedial actions for structures or activities that modify hydrology are:
- Removing in-channel structures; and/or
- Restoring riparian habitat and natural bank and channel structures.

For biologically important, non-wetland species, and rare species, mitigation should include avoidance and impact minimization. For the latter, establish limits of encroachment, per City regulation and MSCP standards, or require addition of new habitat equivalent in biological value and compensating mitigation.

Monitoring guidelines for MSCP target species include:

- Conduct surveys every three years;
- Evaluate success or failure of management activities;
- Record new sightings;
- Re-evaluate management priorities;
- Evaluate impacts of nearby activities; and
- Identify enforcement difficulties.

Guidelines for wildlife crossings include:

- Maintain a standard width to length ratio of 1:2 and a minimum length of 30 feet and height of 15 feet;
- Use bridges rather than culverts;
- Use fences to direct wildlife;
- Incorporate bridge in Neighborhood 10 area where Carmel Mountain Road crosses western

canyon connection to facilitate wildlife crossing (400 feet wide at narrowest);

• Enhance the channel and provide noise barriers along Interstate 805 for wildlife corridors (Peñasquitos Canyon to Torrey Pines), as funds become available.

Protective measures recommended include:

- Buffer zones 200 600 feet outside border of Preserve;
- No removal of vegetation within 200 feet from border of Preserve;
- Standard fire protection measures implemented in buffer zones and in a more limited way in linkages. These include: fuel reduction through prescribed fine, mechanical chopping, or crushing, thinning, trimming and hand-clearing.
- Human access limited to designated trails using natural vegetation, topography, signs, and limited fencing (minimum of 5 to 7 feet high; 3 5 strand barbed wire; 10 feet high at wildlife crossings and roads).

Recommendations for enhancement include:

- Combined trapping in riparian areas adjacent to agriculture and equestrian facilities focuses on managing Least Bell's Vireo, California gnatchatcher, and Cactus wren populations; and
- Identification and prioritization of large areas of invasive exotics for control using the least biologically intrusive methods and most appropriate period of growth cycle to achieve designated goals.

Restoration priorities should be based on the need for connectivity, territory, size, or potential to enhance habitats of sensitive species. Feasibility should be based on the level of effort required, costs, site quality, access, physical factors, biological conditions, and adjacent land uses. Restoration plans should include: formal construction documents; seed and plant procurement specifications; sources of seeds and plants (only use sources in vicinity of restoration site); site protection; irrigation; maintenance standards; success criteria, and monitoring.

COUNTY PLANS APPLICABLE TO LOS PEÑASQUITOS CANYON NATURAL RESOURCES

The only County plan currently proposed for management of County Preserve lands is the Program for Los Peñasquitos Ranch House Restoration and East Canyon Development - (1984) with its

associated Environmental Impact Report (EIR). The Program and EIR were approved by the Board of Supervisors and is currently being implemented. The Restoration Program has four phases: 1) restoration of the north wing of the ranch house, excavation of an adobe mixing area, installation of a water line, grading a pad for the relocation of the caretaker's mobile home, installation of a control gate and sign, installation of low-water use landscaping along entry road, and hydroseeding east of ranch house; 2) landscaping the ranch house courtyard and the area around the relocated mobile home to screen it from visitor's view; 3) restoration of the west wing of the ranch house and reestablishment of the orchard and vineyard west of the house; and 4) restoration of one additional out building (lath shed) have been completed and the County is currently seeking funding to restore the remaining ranch out-buildings.

Educational experiences provided at the Preserve are primarily to make people aware of the value of cultural resources. Docents from the San Diego County Archaeological Society provide tours and programs. Students from San Diego State University and City College conduct archaeological research under the supervision of a professional archaeologist.

EXISTING CONDITIONS

Los Peñasquitos Canyon Preserve is a natural resource based park, over 3,600 acres in size, located in southern California. Figure 1 shows the Preserve about 12 miles north of downtown San Diego bounded by Interstate 5, on the west; a point just east of Interstate 15, on the east; the Mira Mesa community, along the south; and the communities of Rancho Peñasquitos, Carmel Valley and Sorrento Hills, and the Future Urbanizing Area, along the north.

GEOLOGY/SOILS

The primary topographic features of the Preserve are the two main canyons, Los Peñasquitos and Lopez canyons, with shorter, narrower tributary canyons. Los Peñasquitos Canyon originates in the northeast at the foothills in the Poway area, extends southwesterly to terminate at the west coast where it joins Soledad Valley and Los Peñasquitos Lagoon. Lopez Canyon is primarily within the western half of the Preserve originating in the Mira Mesa community area, extending almost due west to join Los Peñasquitos Canyon at its western end just before the junction with Soledad Valley and the Lagoon. Overall elevations range from 600 feet mean sea level (MSL) in the east to 30 feet MSL in the west. General canyon elevations range from 40 to 200 feet MSL with canyon sloping up to 400 feet MSL. Figure 3 illustrates past landslides, potentially hazardous areas, fault traces, and severely eroded areas.

At one time ancient seas covered the Preserve. What were once marine terraces are now mesa tops dissected by canyons created from stream down-cutting and coastal uplift. The primary geologic formations, from oldest to youngest, include: Santiago Peak Volcanics (areas east of ranch house and a few locations in the area around the Falls); Torrey Sandstone (limited to a small area by Interstate 5); Delmar Formation; Ardath Shale; Scripps Formation; Friars Formation; Stadium Conglomerate; Lindavista Formation (mesa tops surrounding canyons); Bay Point Formation (low elevations on slopes in the western Preserve); ancient landslide deposits (south side of canyon just above the Falls); and alluvium and slopewash (surface of canyon floors) (Kennedy 1975; Kennedy and Peterson 1975).

Twenty-five soil types have been found within the Preserve. Table A lists those soils and their erosion and runoff potential. The majority of soils (64 percent or 16 soil types) in the Preserve have a severe erodibility rating. Six are rated moderate and three slight. Nineteen (76 percent) of the soils have the highest potential for runoff. These ratings consider only the properties of the soil (i.e., type, slope, texture, water infiltration rate, natural drainage or wetness, depth to material that restricts water permeability, and grade of structure in surface layer) and not other physical factors, such as vegetation cover, climate, and physiographic features (USDA, 1973). The biological survey (Loy, 1987) states that soil characteristics are "of alluvium and slope wash along major drainages (especially Tujunga Sand and Salinas Clay Loam); of metavolcanic origin in the eastern portions and at the canyon narrows (San Miguel-Erchequer Rocky Salt Loams); of sandstone and shale intermittent through the Preserve (Corralitos Loamy Sand, Altamont Clay, Diavlo-Olivenhain Complex, and Huerhuero Loam); and of conglomerate, especially on steep slopes, (Redding Gravely Loam, Olivenhain Cobbly Loam, and Terrace Escarpments)". Figure 4 further illustrates the level of soil erosion potential within the Preserve.

<u>Faults</u> - Four ancient faults occur within the western portion of Los Peñasquitos Canyon (Figure 3). No evidence of recent activity is found in the recent alluvium on the surface or in the bedrock immediately underlying the surface soils.

<u>Paleontologic Resources</u> - Two recorded paleontologic sites are found within the Preserve. In Lopez Canyon, a Coccolith (microfossils) location is found in Scripps Formation, from the Eocene era. In Los Peñasquitos Canyon, Jurassic molluscs have been found in Santiago Peak Volcanics formation. It is expected that additional paleontologic resource are present in the Preserve; however, only the previously mentioned sites have been recorded.

HYDROLOGY

Los Peñasquitos Creek runs through the entire length of Los Peñasquitos Canyon and provides a permanent water source for Preserve wildlife. Beeler Canyon, Rattlesnake, and Poway creeks are the three main drainages initiating Los Peñasquitos Creek in the east. Flowing westward, Peñasquitos Creek collects water from Sabre Springs, the Preserve, the Peñasquitos Ranch House spring, Lopez


NCY MANAGEMENT AGENCY (1983)



FIGURE

3

TABLE ASOIL TYPES AND LIMITATIONS

Symbol	Soil Series	Hydrologic Group	Erodibility	Limitations for Picnic Areas Paths & Trails	
AtC	Altamont clay, 5 to 9% slopes	D	Slight	Severe ²	Slight
AtD	Altamont clay, 9 to 15% slopes	D	Slight	Severe ²	Slight
AtE	Altamont clay, 15 to 30% slopes	D	Moderate ¹	Severe ²	Moderate ¹
AtF	Altamont clay, 30 to 50% slopes	D	Severe ¹	Severe ²	Severe ¹
AwD	Auld clay, 9 to 15% slopes	D	Slight	Severe ²	Slight
CkA	Chino silt loam, saline, 0 to 2% slopes	С	Moderate ²	Severe ²	Moderate ²
CsB	Corralitos loamy sand, 5 to 9% slopes	A	Severe ²	Moderate ²	Slight
DaE2	Diablo clay, 15 to 30% slopes, eroded	D	Moderate ¹	Severe ¹	Moderate ¹
DoE	Diablo-Olivenhain complex, 9 to 30% slopes	D	Moderate ¹	Severe ¹	Severe ³
GaF	Gaviota fine sandy loam, 30 to 50% slopes	D	Severe ⁹	Severe ¹	Severe ¹
HrC2	Huerhuero loam, 5 to 9% slopes, eroded	D	Severe ⁹	Moderate ¹	Slight
HrD2	Huerhuero loam, 9 to 15% slopes, eroded	D	Severe ⁹	Moderate ¹	Slight
HrE2	Huerhuero loam, 15 to 30% slopes, eroded	D	Severe ⁹	Severe ¹	Moderate ¹
OhE	Olivenhain cobbly loam, 9 to 30% slopes	D	Severe ¹⁶	Severe ¹	Moderate ³
OhF	Olivenhain cobbly loam, 30 to 50% slopes	D	Severe ¹⁶	Severe ¹	Severe ¹
RdC	Redding gravelly sandy loam, 9 to 15% slopes	D	Severe ⁹	Moderate ¹	Slight

TABLE A (Continued) SOIL TYPES AND LIMITATIONS

Symbol	Soil Series	Hydrologic Group	Erodibility	Limitations for Picnic Areas Paths & Trail	
ReE	Redding cobby loam, 9 to 30%	D	Severe ⁹	Severe ¹	Moderate ³
RfF	Redding cobbly loam, dissected, 15 to 50% slopes	D	Severe ¹	Severe ¹	Severe ¹
Rm	Riverwash	Α	Severe ^{2,4}	Severe ²	Severe ²
SbA	Salinas clay loam, 0 to 2% slopes	C	Moderate ²	Moderate ²	Slight
SbC	Salinas clay loam, 2 to 9% slopes	C	Moderate ²	Moderate ²	Slight
SmE	San Miguel rocky silt loam, 9 to 30% slopes	D	Severe ⁹	Severe ¹	Moderate ³
SnG	San Miguel-Exchequer rocky silt loams, 9 to 70% slopes	D	Severe ¹	Severe ¹	Severe ¹
TeF	Terrace escarpments	D	Severe ¹	Severe ¹	Severe ¹
TuB	Tujunga sand, 0 to 5% slopes	A	Severe ²	Severe ²	Severe ²

NOTES:

¹ refers to slopes

² refers to texture of surface layer

³ refers to stones, cobblestones, and rocks on the surface

⁴ refers to ponding, flooding, or overflow
 ⁵ refers to natural drainage

⁹ refers to depth to hard rock

¹⁶ refers to grade of structure in surface layer.

Hydrologic Groups rate runoff potential from lowest (A) to highest (D).

Reprinted from Draft Los Peñasquitos Canyon Preserve Master Plan (1994) County of San Diego

Creek, adjacent tributary canyons, and urban runoff; joins the Soledad drainage system; and flows into the Los Peñasquitos Lagoon. Los Peñasquitos Creek has a total watershed area of 60 square miles (Figure 5), which is about 60 percent of the Lagoon's 95 square mile watershed. Lopez Creek is an intermittent creek fed by runoff entering Lopez Canyon and two seeps (one below the Lopez water tank and one east of the causeway connecting the main trail to the western staging area).

Water Quality - Water quality data is collected by the City and County. The City of San Diego NPDES Stormwater Program began conducting dry weather tests for chlorine and detergents in 1992 at 15 sites which are tributary to Los Peñasquitos Lagoon. Those which directly involve Peñasquitos Creek or are within the Preserve include: Peñasquitos Creek, Peñasquitos Creek at Mercy Road, Lopez Canyon at Sorrento, Lopez Canyon at Montongo, Chicarita Creek, and Cypress Canyon. The County of San Diego recently began to offer a training program for a county-wide water quality data collection program. The County trains interested volunteers in water quality samples and then makes a water quality sampling kit available to them. The volunteers collect the data and provide it to the County for inclusion in a county-wide data vase. Retrieval of stored data will be possible beginning in Summer 1996 (Contact County, Ivan Goalakof, 682-4131, with data requests). The Friends of Los Peñasquitos Canyon Preserve have been trained and are collecting water quality samples at various locations within the Preserve.

Water quality within the Preserve can be affected from three primary sources: urban runoff, groundwater contamination, and sedimentation. Urban runoff is a regional issue. To deal with this issue, the City of San Diego has initiated a comprehensive watershed education program. Groundwater upstream from the Preserve has been periodically contaminated by commercial and industrial wastes, such as petroleum products, pesticides, and heavy metals. Sedimentation is a problem resulting from soil and other material being carried in the water column until water velocity decreases and allows material to "settle out". The degree of sediment carried is directly related to velocity of water and size of particle, for example, the higher velocity resulting from a heavy storm can pick up larger particles and more of them. As land within a watershed is developed, more impermeable surfaces, such as roads and parking lots are built, which in turn, increase the quantity and decrease the quality of the runoff. Runoff velocity is also increased causing more erosion and bringing more sediments into suspension. In addition, more petroleum-related pollutants are





LOS PENASQUITOS CREEK DRAINAGE AREA



5

introduced into the watershed system.

BIOLOGICAL RESOURCES

Los Peñasquitos Canyon Preserve is one of the few natural areas remaining within the County that includes coastal influence in the west, the more arid inland conditions in the east, and a permanent water source through the center of the entire Preserve. This situation allows a high level of diversity for plant and animal species which contribute to the rich uniqueness of the Preserve in urban San Diego. Generally, the Preserve along Los Peñasquitos Creek is characterized by mature woodlands, dense riparian growth, and broad floodplain. Along Lopez Creek, the Preserve is characterized by a narrow wash, severe flooding/erosion, cobbly creek bottom, scrub growth in upper riparian zones, and drought tolerant sycamores in lower riparian zones.

The Los Peñasquitos Canyon Preserve Biological Survey report prepared by Maggie Loy for the County of San Diego in 1987 is the basis for the majority of this discussion of existing biological resources. Subsequent surveys for sensitive species conducted by Friends of Los Peñasquitos Canyon in 1994,1995, and early 1996, and by Mitch Beauchamp (unknown date) are used to update the 1987 survey information. These survey reports are included in Appendix A of this document.

VEGETATION

The rich variety of vegetation within the Preserve is due primarily to its permanent water source and to its proximity to the coast. Of the 222 taxa Loy observed, 22 percent are nonnative. Beauchamp's survey, covering the Preserve between Interstate 15 and Interstate 805, included 246 observed species with 24 percent nonnative species. The Friends of Los Peñasquitos Canyon survey identified 493 taxa (many verified from previous surveys) with 24 percent nonnative species.

Based on dominant plants present, the vegetation in Los Peñasquitos Canyon Preserve can be classified into nine major vegetation types with variations within some of the types. These include: coastal freshwater marsh; coastal brackish marsh; vernal pools; a pond; riparian woodland (southern willow scrub, southern mulefat scrub, southern sycamore riparian woodland, and southern coast live oak riparian); oak woodland (coast live oak woodland and Engelmann oak woodland); coastal sage scrub (Riversidian sage scrub and Diegan coastal scrub); chaparral (chamise chaparral, southern mixed chaparral, southern maritime chaparral, and scrub oak chaparral); disturbed native/nonnative grassland; and ornamental. Figure 6 provides a map of habitat types within the Preserve. The plant species list is available in Appendix B.

<u>Coastal Freshwater Marsh</u> - Freshwater marsh is found at three primary locations within the Preserve: at the waterfall; at the confluence of Lopez and Los Peñasquitos creeks; and at a pond in the north central area. The dominant species at the waterfall and creek confluence locations is yerba mansa (<u>Anemopis californica</u>). Other vegetation present includes cattail (<u>Typha domingensis</u> and <u>Typha latifolia</u>), bulrush (<u>Scirpus robustus</u>), and curly dock (<u>Rumex crispus</u>). The few species growing within this habitat usually form dense thickets around standing freshwater. At the pond location, freshwater marsh vegetation is found along the fringes of the pond and is dominated by cattail and bulrush.

<u>Coastal Brackish Marsh</u> - Brackish marsh occurs when freshwater mingles with salt water. A small area of the Preserve at the western end of Lopez Canyon supports dominant brackish marsh vegetation, such as salt grass (<u>Distichlis spicata</u>), juncus (<u>Juncus</u> sp.), and sedge (<u>Cyperus</u> sp.). The growth habit of this type of vegetation is low and dense. It is an unusual habitat to find so far from direct salt water influence. Possible reasons for its occurrence may be that it is a remnant of previous tidal influence, a result of "salt-licks" used during past ranch operations, or an indicator of high saline content in groundwater. A one-to-two-acre brackish marsh dominated by alkali heath (<u>Frankenia grandifolia</u>) and pickleweed (<u>Salicornia sp.</u>) is located east of the I-805 merge and north of Peñasquitos Creek. These species are saline soil dependent and exist at this location due to the proximity of Los Peñasquitos Lagoon.

<u>Vernal Pools</u> - Vernal pools occur on mesa tops and valleys where certain topography and soils allow the seasonal ponding of water. Pools found within and adjacent to the Preserve are on mesa tops north of Los Peñasquitos Canyon and along Lopez Ridge. Characteristic vegetation includes San Diego mesa mint (<u>Pogogyne abramsii</u>), San Diego coyote thistle (<u>Eryngium aristulatum ssp. parishii</u>), Orcutt's brodiaea (<u>Brodiaea orcuttii</u>), downingia (<u>Downingia cuspidata</u>), and wooly marbles



SOURCES: LOY (1987), FRIENDS OF LOS PENASQUITOS CANYON PRESERVE (1994, 1995, 1996)

BITATS





(Psilocarpus tenellus). Plants in this habitat are small and grow low to the ground.

<u>Southern Willow Scrub</u> - This riparian woodland occurs in the wetter areas along river and stream banks. The dominant plant species is arroyo willow (<u>Salix lasiolepis</u>). Occasionally, black willow (<u>S. goodingii</u>) occurs. Understory plants include: poison oak (<u>Toxicodendron radicans ssp. diversilobum</u>), Douglas mugwort (<u>Artemisia douglasiana</u>), mulefat (<u>Baccharis glutinosa</u>), amorpha (<u>Amorpha fruticosa</u>), and yerba mansa. This habitat has two types of growth (mid-size trees, willows, and low shrubs, understory species) and occurs where water is near the soil surface, such as creeks, rivers, drainage bottoms, and moist canyons.

<u>Southern Mulefat Scrub</u> - Southern mulefat scrub is a often a successional phase and occupies arroyos or washes which are too dry for perennial riparian woodlands, but too wet from frequent flooding for upland vegetative communities. Typical plants of this community include mulefat, broom baccharis (<u>Baccharis sarothroides</u>), and telegraph weed (<u>Heterotheca grandiflora</u>).

<u>Southern Sycamore Riparian Woodland</u> - Western sycamore (<u>Platanus racemosa</u>) is the dominant tree species in this vegetative community. Less dominant species include black cottonwood (<u>Populus</u> <u>fremontii</u>) and Mexican elderberry (<u>Sambuccus mexicana</u>) which occur in the drier portions of the riparian forest within the Preserve. Some of the lower-growing understory species include flat-top buckwheat (<u>Eriogonum fasciculatum</u>), chaparral broom (<u>Baccharis sarathroides</u>), isocoma (<u>Haplopappus venetus</u>), and San Diego marsh elder (<u>Iva hayesiana</u>). Other native species growing in the sycamore dominated woodland in the Preserve are Palmer's mugwort (<u>Artemisia palmeri</u>) and jimsonweed (<u>Datura meteloides</u>).

<u>Southern Coast Live Oak Riparian Woodland</u> - Coast live oak (<u>Quercus agrifolia</u>) dominates the woodland habitat found in riparian areas along Los Peñasquitos Creek. Understory vegetation varies from previously grazed grassland to subshrubs such as wild gooseberry (<u>Ribes</u> ssp.), poison oak, and Palmer's mugwort. The usual growth habit in this woodland consists of a thick oak tree canopy with lower growing subshrubs forming the understory.

Coast Live Oak Woodland - Coast live oak is the dominant tree species above the height of the

surrounding shrub species. This habitat often co-occurs with mixed chaparral, thus understory species often include scrub oaks (<u>Quercus berberidfolia</u> and/<u>Quercus dumosa</u>) or other mixed chaparral shrubs. Associated species are poison oak, fuchsia-flowered gooseberry (<u>Ribes speciosum</u>), and toyon (<u>Heteromeles arbutifolia</u>). Coast live oak also can dominate habitat between riparian zones and drier slope areas, between riparian woodland and chaparral habitats.

<u>Engelmann Oak Woodland</u> - Engelmann oaks (<u>Quercus engelmannii</u>) are found in three locations within the Preserve: along the southern slope of lower Lopez Canyon; in the Winterwood finger canyon; and in Los Peñasquitos Canyon between Black Mountain Road and the I-15 bridge. The growth habit of Engelmann oak woodland is more sparse and open than the coast live oak woodland.

<u>Coastal Sage Scrub</u> - Two varieties of coastal sage scrub occur on the drier south-facing slopes. <u>Riversidian Sage Scrub</u> - Riversidian sage scrub is dominated by coastal sagebrush (<u>Artemisia</u> <u>californica</u>), black sage (<u>Salvia mellifera</u>), and flat-topped buckwheat.

<u>Diegan Sage Scrub</u> - Diegan sage scrub occurs primarily on the drier west-facing and south-facing slopes throughout the Preserve. This community type is dominated by low, soft-woody shrubs and subshrubs that are typically drought-deciduous, such as coastal sagebrush, black sage, white sage (<u>Salvia apiana</u>), and laurel sumac (<u>Malosma laurina</u>).

<u>Chamise Chaparral</u> - The chamise chaparral within the Preserve occurs primarily on and near mesas and is dominated by chamise. The brush within this habitat is often so dense that a substantial overstory cover develops. Understory does exist as opportunity allows. A common understory plant is mesa clubmoss (<u>Selaginella cinerascens</u>).

<u>Southern Mixed Chaparral</u> - Southern mixed chaparral is found on east-facing, moister north-facing slopes, and drainages. On north-facing slopes, it is usually above or interspersed with oak woodland, including <u>Quercus berberidifolia</u> and <u>Quercus dumosa</u>. Dominant plant species are evergreen, such as mission manzanita (<u>Xylococcus bicolor</u>), summer holly (<u>Comarostaphylos diversifolia</u> ssp. <u>diversifolia</u>), lemonade berry (<u>Rhus integrifolia</u>), redberry (<u>Rhamnus crocea</u>), barberry (<u>Berberis pinnata</u>), and laurel sumac (<u>Malosma laurina</u>). Nuttall's scrub oak is found lower on the slopes and in flatter areas.

<u>Southern Maritime Chaparral</u> - Maritime Chaparral is found along the coast in remnant natural habitat areas. Dominant species within the few areas of southern maritime chaparral within the Preserve are mission manzanita and chamise with occasional strands of rarer Del Mar mazanita (<u>Arctostaphylos glandulosa ssp. crassifolia</u>) and coast white-lilac (<u>Ceanothus verrucosus</u>).

<u>Scrub Oak Chaparral</u> - Scrub oak (<u>Quercus berberidifolia</u> and <u>Quercus dumosa</u>) dominates this type of chaparral in several areas within the Preserve. The oaks can reach six meters in height.

Disturbed Native/Nonnative Grassland - Disturbed native/nonnative grasslands are primarily a result of historic overgrazing which damaged native grassland so severely that opportunistic nonnative grasses invaded. Within the Preserve, this vegetative community occurs primarily in the western and northeast portions. It is common adjacent to riparian areas, grazed hillsides, and openings in sage scrub and chaparral communities. The more disturbed areas support wild oat (<u>Avena sp.</u>), soft chess (<u>Bromus sp</u>,) and wild rye (<u>Lolium sp.</u>). Less disturbed areas still support some native grassland species, such as grasses (<u>Nassella</u>, spp. and <u>Leymus spp.</u>), purple needlegrass (<u>Nassella pulcra</u>), San Diego thornmint (<u>Acanthomintha ilicifolia</u>), mariposa lily (<u>Calochortus splendens</u>), and tarweed (<u>Holocarpa virgata</u>).

<u>Ornamental/Urban</u> - Ornamental/urban vegetative communities occur primarily in two large areas at the eastern end of the Preserve in the vicinity of the ranch house. Urban or exotic vegetation is not considered a habitat type; however, the presence of exotic plants in the Preserve must be addressed. These plants are undesirable and in many cases out compete the desirable native vegetation. Encroachment of exotic plants from adjacent residential areas is considered a major threat to native habitats. Examples of some of the more detrimental and/or invasive species present include eucalyptus (Eucalyptus sp.), castor bean (Ricinus communis), pampas grass (Cortaderia jubata), tamarisk (Tamarisk sp.), Brazilian pepper tree (Schinus terebinthifolius), artichoke thistle (Cynara cardunculus), fennel (Foeniculum vulgare), and Canary Island palm (Phoenix canariensis).

WILDLIFE

A wide variety of wildlife (birds, mammals, amphibians, reptiles, and fish) is found in the Preserve due

to the size and diversity of habitat within the Preserve.

<u>Birds</u> - The original survey by Phil Unitt in 1978 listed 67 birds observed within the Preserve. The Zepf and Edwards report (1996) listed 180 species, including resident as well as seasonal migrants. A complete list of bird species observed within the Preserve is provided in Appendix C. The most common bird species observed include: California quail (<u>Callipepia californica</u>), mourning dove (<u>Zenaida macroura</u>), road runner (<u>Geococcyx californianus</u>), bushtit (<u>Psaltriparus minimus</u>), yellow-rumped warbler (<u>Dendroica coronata</u>), scrub jay (<u>Aphelocoma coerulescens</u>), and white-crowned sparrow (<u>Zonotrichia leucophrys</u>). Other species of interest are red-tailed hawk (<u>Buteo jamaicensis</u>), red-shouldered hawk (<u>B. lineatus</u>), northern harrier (<u>Circus cyaneus</u>), white-tailed kite (<u>Elanus leucurus</u>), sharp-shinned hawk (<u>Accipiter striatus</u>), Cooper's hawk (<u>Accipiter cooperii</u>), American kestrel (<u>Falco sparverius</u>), acorn woodpecker (<u>Melanerpes formicivorus</u>), and killdeer (<u>Charadrius vociferus</u>).

<u>Mammals</u> - A perennial water source, variety of cover and habitat, and overall size make the Preserve of great value for medium- and large- sized mammals. Species observed within the Preserve are mule deer (<u>Odocoileus hemionus</u>), coyote (<u>Canis latrans</u>). bobcat (<u>Felis rufus</u>), gray fox (<u>Urocyon cineroargenteus</u>), raccoon (<u>Procyon lotor</u>), and mountain lion (<u>Felis concolor</u>). Also present in large numbers are small mammals such as brush rabbit (<u>Sylvilagus bachmani</u>), black-tailed jack rabbit (<u>Lepus californicus</u>), opposum (<u>Didelphis virginiana</u>), Botta's pocket gopher (<u>Thomomys botte</u>), deer mouse (<u>Peromyscus maniculatus</u>), California vole (<u>Microtus californicus</u>), California ground squirrel (<u>Spermophilus beechevi nudipes</u>), and dusky-footed woodrat (<u>Neotoma fuscipes</u>).

<u>Amphibians and Reptiles</u> - The presence of a permanent water source and several ponds creates a favorable environment for amphibians. Some of the amphibians observed in the 1987 biological survey include aroboreal salamander (<u>Aneides lugubris lugubris</u>), western spadefoot (<u>Scaphiopus hammondi</u>), Pacific treefrog (<u>Hyla regilla</u>), and bullfrog (<u>Rana catesbeiana</u>).

The variety of habitats within the Preserve provides the opportunity to find an assortment of reptiles. The following reptiles are some of the species observed within the Preserve: western fence lizard (<u>Sceloporus occidentalis biseriatus</u>), San Diego horned lizard (<u>Phrynosoma coronatum blainvillei</u>), western skink (Eumeces skiltoniaus), orange-throated whiptail (Cnemidophorus hyperythrus beldingi), coastal rosy boa (Lichanura trivigata rosefusca), California striped racer (Masticophis lateralis lateralis), California kingsnake (Lampropeltis getulus), red diamondback rattlesnake (Crotalus ruber ruber), and western rattlesnake (C. viridis helleri). Pond turtles (Clemmys sp.) are expected to occur within the Preserve around the various ponds. They are sensitive to drought and, therefore, require permanent quiet water.

<u>Fish</u> - Fish species observed within the Preserve are mosquito fish (<u>Gambusia affinis</u>), large-mouthed bass (<u>Micropterus salmoides</u>), bluegill (<u>Lepomis macrochirus</u>), and green sunfish (<u>Lepomis cyanellus</u>). Catfish (<u>Ictalurus</u> sp.) can also be expected to occur based on the type of aquatic habitat present. All the fish are stocked or naturalized at a pond owned by the City of Poway. Mosquito fish are stocked for County Vector Control.

<u>Wildlife Corridors</u> - A wildlife corridor is "a route used by one or more species to move between two areas of habitat" (MSCP, 1995). Corridors are very important for large mammals, especially predators. There are two types of corridors: local and regional. Local routes allow individuals to hunt, forage, and find water and den sites. Regional corridors allow species to migrate seasonally and to disperse individuals to other areas and meet other subpopulations. Corridors are defined or constrained by various factors, such as topographic features, habitat, availability of natural and passable open space, game trails, and/or urban pressures (e.g., noise, lighting, lack of vegetative cover, and domestic animals). It is important to maintain the Preserve corridors as connecting links for wildlife to move between habitats to the east and west. Known major corridors within the Preserve are mapped on Figure 7.

SENSITIVE SPECIES

Several sensitive plants and animals occur within the Preserve and in the immediate vicinity. Others have not been observed but are expected due to the presence of favorable conditions and habitat. Sensitive plants and animals have usually become so due to loss of suitable habitat for their specific needs. Protection of sensitive habitats, therefore, is important in the preservation of sensitive species. These include species of concern to the U.S. Fish and Wildlife Service (USFWS), California

Department of Fish and Game (CDFG), California Native Plant Society (CNPS), and Audubon Society (Blue List).

In San Diego County, the Diegan coastal sage scrub, riparian, and oak woodland habitats are considered sensitive. Diegan coastal sage scrub is considered sensitive because it supports a number of sensitive plant and bird species. Approximately 70 percent of the Diegan coastal sage scrub, which historically covered much of the coastal portion of the County, has been lost due to development and agricultural activities. Oak woodland is considered a sensitive habitat by the California Natural Diversity Data Base because of its limited extent and wildlife value. Oak woodland is known for supporting a variety of wildlife species including amphibians, mammals, and birds. Dense and sparse oak woodland is believed to make up less than four percent of the total County area. Wetlands are considered sensitive resources, and U.S. Army Corps of Engineers permits are required for disturbance of a riparian area. Five types of riparian communities occur in the Preserve. Southern sycamore riparian woodland and southern coast live oak riparian woodland are important for supporting a variety of wildlife species. Southern willow scrub is considered sensitive because of its riparian nature and support of bird species. Vernal pools, which support several sensitive and listed species, occur primarily on mesa tops (those adjacent to the Preserve are also included in this Management Plan) and have been declining due to development and agriculture often located along drainages and to urban pollutants which degrade and/or destroy habitat vegetation. The remaining riparian community is freshwater marsh.

Plants

A total of 16 different sensitive plant species are known to occur within the Preserve (Table B). Ratings of sensitivity for these species were made by the federal and state governments and the California Native Plant Society. As could be expected, the majority of sensitive plants occur in sensitive habitats. For example, coast barrel cactus (<u>Ferocactus viridescens</u>) and ashy spike-moss (<u>Selaginella cinerascens</u>) all occur in coastal sage scrub, a sensitive habitat.

<u>Amphibians</u> - The western toad (<u>Bufus boreas</u>) is common in the Preserve. The arroyo toad (<u>Bufo</u> <u>microscaphus californicus</u>) is a California Species of Special Concern which can be found in drier

TABLE B

SENSITIVE PLANT SPECIES LOS PEÑASQUITOS CANYON PRESERVE

Species	State/Federal	CNPS	CNPS	Comments
	Status	List	Code	
Acanthomintha ilicifolia	CAT 1/ CE	IB	2-3-2	Grassland
San Diego thornmint				
Adolphia californica*	/ FPE			Coastal chaparral
California adolphia				
Agave shawii	CAT 2	2	3-3-1	Coastal sage scrub
Shaw's agave (Coastal agave)				
Ambrosia pumila	CAT 2	1B	3-3-2	Chaparral, grasslands, coastal sage
San Diego ragweed				scrub, vernal pools
Arctostaphylos glandulosa ssp.	/ FPE			Coastal chaparral
crassifolia*				
Del Mar manzanita				
Artemisia palmeri	/	2	2-2-1	Riparian
San Diego sagewort	~			
Brodiaea filfolia	CE - C1	1B	3-3-3	Valley and foothill grassland, vernal
Thread-leaved brodiaea				pools
Brodiaea orcutti*	/ C2	1B	1-3-2	Closed-cone coniferous forest,
Orcutt's brodiaea				meadows, cismontane woodland,
				valley and foothill grassland, vernal
				pools
Ceanothus verrucosus*	/ C2	2	1-2-1	Chaparral
Chorizanthe polygonoides var.	CAT 2	1B	2-2-2	Chaparral, coastal sage scrub,
longispina				grassland
Long-spined spineflower				

TABLE B (Continued)

SENSITIVE PLANT SPECIES LOS PEÑASQUITOS CANYON PRESERVE

	State/Federal	CNPS	CNPS	Comments
Species	Status	List	Code	
Comarostaphylis diversifolia spp. diversifolia* Summer holly	/ C2	1B	2-2-2	Chaparral
Coreopsis maritima* Sea dahlia	/	2	2-2-1	Coastal sage scrub
Corethrogyne filaginifolia var. linifolia* Del Mar sand aster	/ FPT	1B	3-2-3	Chaparral
<i>Dichondra occidentalis</i> * Western dichondra	/	4	1-2-1	Chaparral, cismontane woodland, coastal sage scrub, valley and foothill grassland
<i>Dudleya blochmaniae</i> sp. <i>brevifolia</i> * Short-leaved dudleya	CE / FPE	1B	3-3-3	Chaparral, coastal sage scrub (Linda Vista formation)
Eryngium aristulatum var. parishii San Diego button celery	CE / FE	1B	1-3-2	Vernal pools
Ferocactus viridescens* Coastal barrel cactus	/ C2	2	1-3-1	Coastal sage scrub
<i>Iva hayesiana</i> San Diego marsh elder	/ C2	2	2-2-1	Riparian
Juncus acutus spp. leopoldii (also: var.shaerocarpus) Southwestern spiny rush		4	1-2-1	Wetlands

Species	State/Federal	CNPS	CNPS	Comments
	Status	List	Code	
<i>Monardella linoides</i> spp. <i>viminea</i> Poway mint	CAT 2 / CE	1B	2-3-2	Rocky, sandy places, sometimes in washes, floodplains
<i>Muilla clevelandii</i> San Diego goldenstar	/ C2	1B	2-2-2	Chaparral, coastal sage scrub, valley and foothill grassland, vernal pools
Myosurus minimus Little mousetail	CAT 2	3	2- 3-2	Vernal pools
<i>Navarretia fossalis</i> Prostrate navarretia	CAT 1	1B	2-3-2	Vernal pools
Ophioglossum californicum* California adder's-tongue fern	/	4	1-2-2	Clay mesa soils
Pogogyne abramsii San Diego mesa mint	CE / FE	1B	2-3-3	Seasonal wetlands; vernal pools
<i>Quercus dumosa</i> * Nuttall's scrub oak	/ C2			Southern maritime chaparral, coastal mixed chaparral
Quercus engelmannii Engelmann oak		4	1-2-2	Oak woodland
Selaginella cinerascens* Ashy spike-moss	/	4	1-2-1	Chaparral, coastal sage scrub
Viguiera laciniata San Diego sunflower		4	1-2-1	Coastal sage scrub

NOTE: See Table B-1 for explanation of sensitivity codes.

TABLE B-1

SENSITIVITY CODES

FEDERAL CANDIDATES AND LISTED PLANTS

FE	=	Federally listed, endangered
FT	=	Federally listed, threatened
FPE	=	Federally proposed endangered
FPT	=	Federally proposed threatened
C1	=	Enough data are on file to support a proposal for the federal listing
C2	=	Threat and/or distribution data are insufficient to support federal listing
C3a	ы	Extinct
C3b	=	Taxonomically invalid
C3c	=	Too widespread and/or not threatened
		STATE LISTED PLANTS
CE	=	State listed, endangered
CR	=	State listed, rare
CT	=	State listed, threatened

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CALIFORNIA NATIVE PLANT SOCIETY				
LISTS	R-E-D CODES			
1 = Plants of highest priority.	R (Rarity)			
	1 = Rare, but found in sufficient numbers and distributed			
1A = Species presumed extinct in California.	widely enough that the potential for extinction is low at this			
	time.			
1B = Species rare, threatened or endangered in California	2 = Occurrence confined to several populations or to one			
and elsewhere. These species are eligible for state listing.	extended population.			
	3 = Occurrence limited to one or a few highly restricted			
2 = Species rare, threatened, or endangered in California	populations, or present in such small numbers that it is			
but which are more common elsewhere. These species are	seldom reported.			
eligible for state listing.				
	E (Endangerment)			
3 = Species for which more information is needed.	1 = Not endangered.			
Distribution, endangerment, and/or taxonomic information is	2 = Endangered in a portion of its range.			
needed.	3 = Endangered throughout its range.			
4 = A watch list of species of limited distribution. These	D (Distribution)			
species need to be monitored for changes in the status of	1 = More or less widespread outside California.			
their population.	2 = Rare outside California.			
	3 = Endemic to California.			

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areas along Los Peñasquitos Creek. A species not observed, but potentially occurring is the redlegged frog (<u>Rana aurora draytonii</u>), a Species of Special Concern which needs permanent quiet ponds.

Reptiles - Eleven reptile species have been observed in the Preserve: San Diego horned lizard (Phrynosoma coronatum blainvillii) a California Species of Special Concern; orange-throated whiptail (Chemidophorus hyperythrus beldingi) a California Species of Special Concern; sideblotched lizard (Uta stasburiana); California legless lizard (Anniele pulcra); common gopher snake (Pituophis melanoleucus); western yellow-belly racer (Coluber constrictor mormom); long-nosed snake (Rhinocheilus lecontei); two-striped garter snake (Thamnophis couchii hammondii); rosy boa (Lichanura trivirgata roseofusca) of local concern; red diamondback rattlesnake (Crotalus ruber ruber), of local concern; and desert tortoise (Gopherus agassizi), a candidate for federal listing. Two additional species, southwestern pond turtle (Clemmys mamorata pallida) and silvery legless lizard, (Aniella pulchra pulchra) of local concern are expected to occur in the Preserve but have not been observed. An exotic and invasive turtle, red-eared slider (Trachemys scripta elegans), has been found in the Preserve.

<u>Birds</u> - Of the 180 bird species reported to have been observed within the Preserve, eleven species are considered sensitive within San Diego County. Additionally, three species are expected to use the Preserve on a seasonal basis and three species are expected to occur in small numbers.

Observed sensitive birds include:

- Northern harrier (<u>Circus cyaneus</u>) Audubon Blue List; California Department of Fish and Game (CDFG) Species of Special Concern; HABITAT: grasslands;
- Sharp-shinned hawk (<u>Accipiter striatus velox</u>) Audubon Blue List, CDFG Species of Special Concern. HABITAT: woodland;
- Cooper's hawk (<u>Accipiter cooperii</u>) CDFG Species of Special Concern, Priority 3.
 HABITAT: oak woodland, riparian woodland, coastal live oak;

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- Red-shouldered hawk (<u>Buteo lineatus elegans</u>) City of San Diego Resource Protection
 Ordinance "Sensitive Species" List (1/8/91). HABITAT: oak woodland, riparian woodland, coastal live oak;
- White-tailed kite (<u>Elanus caeruleus majusculos</u>) CDFG Species of Special Concern, California fully protected species. HABITAT: Riparian or oak woodland adjacent to grassland;
- · Bewick's Wren (Thryomanes bewickii) Audubon Blue List. HABITAT: scrub;
- Loggerhead shrike (<u>Lanius ludovicianus</u>) CDFG Species of Special Concern.
 HABITAT: grasslands near scattered bushes and low trees;
- Rufous-crowned sparrow (<u>Aimophila ruficeps canescens</u>) Candidate for federal listing (USFWS) and CDFG Species of Special Concern. HABITAT: coastal sage scrub and chaparral;
- Grasshopper sparrow (<u>Ammodramus savannarum</u>) City of San Diego Resource Protection Ordinance Sensitive Species List (1/8/91). HABITAT: grasslands; and
- Coastal California gnatcatcher (<u>Polioptila californica californica</u>) Federal listing as threatened (USFWS), CDFG Species of Special Concern. HABITAT: Coastal sage scrub, maritime succulent scrub.
- Least Bell's vireo (Vireo bellii pusillus) Federal (USFWS) and state (CDFG) listed endangered species. HABITAT: riparian woodland.
- Yellow warbler (<u>Dendroica</u> (<u>petechia</u>) CDFG Species of Special Concern.
 HABITAT: riparian.

Expected seasonal species include:

Yellow-breasted chat (<u>Icteria virens</u>) - CDFG Species of Special Concern, Priority 2.
 HABITAT: willow scrub.

Species expected to occur in small numbers include:

- Cactus wren (<u>Campylorhynchus brunneicapillus couesi</u>) Endangered. HABITAT: coastal sage scrub and chaparral, and
- Burrowing owl (<u>Athene cunicularia</u>) USFWS is recommending a Candidate 2 listing, CDFG Species of Special Concern, and City of San Diego Resource Protection Ordinance Sensitive Species Listing (1/8/91). HABITAT - grassland, agricultural land, and coastal sand dunes.

<u>Mammals</u> - No rare, endangered, or threatened mammals have been observed or are expected to occur within the Preserve. Mountain lion (<u>Felis concolor</u>) and bobcat (<u>Lynx rufus</u>) occur within the Preserve and are considered sensitive to development but are not listed as sensitive at this time by any agency. Another species, the badger (<u>Taxidea taxus</u>), has been observed in open, wooded areas. The CDFG consider badger to be a Species of Special Concern.

CULTURAL RESOURCES

Cultural resources within the Preserve represent over 5,000 years of documented history. Several surveys have been conducted within the Preserve. The Fink and Corum (1983) survey conducted in December 1979 and 1980 found 68 prehistoric and historic sites within and in the immediate vicinity of the Preserve. The more recent survey is the one conducted by Schaefer and Elling in 1987. Schaefer and Elling revisited originally recorded prehistoric and historic sites where the Los Peñasquitos Canyon Preserve Master Plan proposed facilities, such as trails and parking lots. The map of these sites is not available to the public but is held by the City of San Diego for reference in approving and/or siting trails and other development within or adjacent to the Preserve. The County of San Diego developed the "Cultural Resource Management Plan for Los Peñasquitos Ranch House" (1984) to protect this historical resource from impacts and to avoid

and mitigate impacts associated with restoration and renovation. The County, San Diego State University, and San Diego Archaeological Society are doing ongoing research on cultural resources within the Preserve.

PREHISTORIC RESOURCES

In 9,500 B.C., the San Dieguito people inhabited San Diego County. The San Dieguito people were nomadic and centered their lives around hunting and fishing.

Evidence exists, which indicates the "La Jollans" inhabited the area from about 6,000 B.C. The San Dieguito people may or may not have assimilated, or possibly evolved, into the La Jolla people. La Jollans left signs of their occupation that are sometimes uncovered. They were a semi-nomadic people oriented toward marine-related activities. They gathered shellfish and hunted marine mammals for food and some tools. Nuts, berries, and seeds were also gathered and ground for food. The Yuman-speaking Kumeyaay Indians migrated from the desert to the San Diego coast in the late Prehistoric era. They brought with them new ideas and customs. The Kumeyaay were primarily hunters and gathers, eating rabbit, acorns, and grass seed. To encourage larger seeds and attract animals for hunting, they burned the grasslands and hillsides. Regular, seasonal travels took them from the coast to the mountains and even to the desert to gather fresh food (Christenson, 1994). The Shoshonean-Luiseño culture were also found in San Diego County, between the coast and the mountains in the northern portion of the County. The Luiseño were hunter-gathers who established at least two base camps. The winter camp was the primary camp used for ceremonies and was usually in a sheltered valley. In the spring, the camp broke into smaller groups to gather shellfish and vegetables. The summer-fall base camp was usually near an oak grove and was used as an acorn collecting and hunting camp (ERC, 1991). It is the descendants of the Kumeyaay and Luiseño people who the first Europeans encountered when they founded the Mission of San Diego in 1769.

Over 100 locations of prehistoric activity are recorded in Los Peñasquitos Canyon Preserve. The following is a list of prehistoric sites recorded in the Fink and Corum (1983) survey as updated in

the Schaefer and Elling survey (1987).

- 16 low density lithic scatters
- 6 temporary camp sites (from the Late Prehistoric and Early Archaic periods
- 6 lithic scatters
- 4 bedrock milling stations (food preparation)
- 2 temporary camps
- 2 isolated flakes
- 1 quarry site with flaked stone and groundstone artifacts
- 1 possible hearth
- 11 originally recorded sites destroyed subsequent to recording
- 7 sites could not be relocated in 1987 survey (sites originally located along dirt trails or road and consisted mostly of lithic scatters)

HISTORICAL RESOURCES

As long ago as 1769, the padres from the Mission of San Diego are believed to have run cattle and planted orchards and vineyards within Los Peñasquitos Canyon. Historical resources cataloged by Fink and Corum (1983) and checked again by Schaefer and Elling (1987) include: four historic ranch sites, three standing and one partially standing; three historic trash deposits; and one historic site with a structure, foundations and associated groves. The ranch sites are described more fully below.

Los Peñasquitos Ranch House - In 1823, the first Mexican governor of California, Luiz Antonio Arguello, gave the first Mexican land grant (Rancho Santa Maria de los Peñasquitos) in what is now San Diego County to Captain Francisco Maria Ruiz (Ward, 1991). Ruiz was the military commandant of the Presidio in San Diego. The home he built (Los Peñasquitos Ranch House) at the eastern end of Los Peñasquitos was at one time the only residence between San Diego and Mission San Luis Rey. The land grant also supported groves and cattle. In 1834, Ruiz requested and was granted additional land, referred to as the El Cuervo land grant, to the west of his existing Los Peñasquitos land grant (Ward, 1991). When Ruiz' health was failing, he conveyed his land to Francisco maria Alvarado, his grandnephew, in 1837 (Ward, 1991). General Kearney and his soldiers Los Peñasquitos Rancho as a resting spot following their defeat at the Battle of San Pasqual in 1846.

Estefana Alvarado, Francisco Alvarado's daughter, married Captain George Alonso Johnson in 1859. In 1869, Johnson bought a half interest in the Rancho from his brother-in-law, Diego (Ward, 1991). From about 1860-1880, the Johnsons lived in the original Ruiz adobe, officially registered as the Rancho Santa Maria del los Peñasquitos but usually referred to as the Los Peñasquitos Ranch House. In 1862, the Johnsons began to expand their home by adding two additional wings to accommodate a growing family.

Subsequent to Charles Mohnike's acquisition of the Rancho in 1910, a fire destroyed some of the wooden portions of the Ranch House. Mohnike rebuilt those portions of the Ranch House in 1913, by adding bathrooms and a kitchen. He also added an adobe barn, corral, and shed to the Ranch House complex. Mohnike used the Ranch House as a bunkhouse for ranch employees. This type of use was continued by subsequent owners until the 1940's. The Ranch House complex is currently listed on the National Register of Historic Places. The County of San Diego owns the complex and has restored the Ranch House and uses it for meetings and as a center for management and interpretive activities.

<u>El Cuervo Adobe</u> - In 1857, Alvarado's son, Diego, took over rancho operations. Diego Alvarado built his home, El Cuervo Adobe, near the western end of the Preserve at the confluence of the Los Peñasquitos and Lopez Canyons (Figure 2). El Cuervo Adobe was previously referred to as the Ruiz-alvarado Adobe prior to additional research which found "El Cuervo" to be the original name. Use of the El Cuervo Adobe is estimated to be from at least the mid-1850's. Heavy rains and neglect have reduced this adobe to ruins. All that remains standing is one wall. A protective roof was build over the adobe and the wall was stabilized by the County Park and Recreation Department in the early 1970's.

Mohnike Adobe - In 1910, Charles Mohnike bought the Los Peñasquitos Rancho for \$100,000 (Ward, 1991). Mohnike built the "Mohnike Adobe" around 1912. The structure is located on the

current Equestrian Center leasehold east of Black Mountain Road and is currently occupied (Figure 2).

Lopez Canyon Ranch Site - A ranch site in Lopez Canyon dates to the 1940's and 1950's. This ranch complex is now represented only by concrete foundations, fallen wooden structures, and a concrete cistern. A trail currently runs through the site.

LAND USE AND RECREATION

Consistent with its natural resource character, Preserve improvements are kept to a minimum and consistent with the natural setting. Improvements include historical resources (El Cuervo Adobe, Los Peñasquitos Ranch House complex, ranch site ruins, and Mohnike Adobe), restrooms, parking lots, picnic tables, equestrian center, horse hitches, and designated trails.

All recreational activities within the Preserve are day-use only. Recreation within the Preserve is primarily passive and includes jogging, hiking, bicycling, horseback riding, picnicking, interpretive programs, and wildlife watching. More active areas include hang gliding at the western end and the equestrian center and ranch house complex activities located at the eastern end. The hang gliding area is not open to the general public. The San Diego Hang Gliding Association has a permit to conduct activities at the designated hang gliding area, at the southern end of Lopez Ridge. This permit is subject to revocation by Park and Recreation staff if historic site or environmental damage is found or other conditions of the permit are not met.

The Los Peñasquitos Canyon Preserve Master Plan estimates the Preserve can support a maximum of 1241 visitors at one time. This includes: 366 hikers (15 hikers per mile with 24.4 miles of trail); 214 equestrians (20 per mile with 10.7 miles of trail); and 84 picnickers (4 people per table with 21 tables). Hang gliders, bicyclists, and interpretive center visitors comprise the balance of 577 visitors.

STATEMENT OF PROBLEM

Management of natural resources in Los Peñasquitos Canyon Preserve must consider impacts from human use, erosion, and surrounding development.

PUBLIC USE

Los Peñasquitos Canyon Preserve is used not only by adjacent communities but also attracts people from throughout the City and County. The constant pressure of human use, including both passive and active recreational use, can damage the Preserve's natural and cultural resources. Intentional cultural site vandalism is also a problem. Cattle-grazing was allowed within the Preserve until recently and the resultant damage to native grasslands is a current problem. Presently, the Preserve is in almost constant use during the year for hiking, horseback riding, running, picnicking, nature appreciation, bicycling, and historical resource interpretation. This degree of use and the Preserve's setting, as a large natural open space in an urban area, bring attendant problems such as litter control, graffiti, and illegal activities. Some Preserve users (off-trail hikers, bicyclists, horseback riding, transients, off-road vehicles, motorcyclists, and sledders) often enter inappropriate, sensitive areas. Additionally, overuse by bicyclists and horseback riders is a future threat to trails and Preserve resources as the number of visitors increases. This misuse and overuse result in damage to trails, hillsides, natural resources, and historic artifacts. Land uses which increase the level of disturbance within the Preserve include the horseback riding stables and the ranch house complex. This pressure will continue to increase as the population rises and new types of recreation develop which require open space.

URBAN ENCROACHMENT

The Preserve's proximity to residential areas results in refuse dumping, illegal off-road vehicular and pedestrian access, and some visual and backyard encroachment into the Preserve; Building developments to the north have intruded into the Preserve. Nonnative landscape plants also have invaded the Preserve from adjacent residential and commercial land use sources. Increased runoff

from surrounding urban development and upstream water sources introduce pollutants which degrade the Preserve.

EASEMENTS

Due to the large size of the Preserve, there are several easements which allow utilities (electricity, water, and sewer) to traverse the Preserve. Problems occur from the presence of construction and maintenance crews, especially when the large equipment used leaves the pre-approved and designated access roads. The siting of access roads can damage wetlands, impact aesthetic values, and increase erosion. A problem also exists with the misuse of open space easements by adjacent and local residents. Often residents with property adjacent to open space easements or City open space consider it an extension of their backyards and build spas, decks, and/or fences; clear the area of native vegetation; and/or plant nonnative vegetation or gardens. In addition, property owners often violate easement restrictions by building structures, clearing vegetation, landscaping, and/or dumping trash and/or yard-waste in the Preserve. In so doing, they are encroaching on City or County public property.

EROSION/SEDIMENTATION

Erosion and sedimentation problems exist primarily in the western two-thirds of the Preserve, especially along streambeds and hillsides. Bank erosion is a problem in several places along nature trails and in tributary canyons. Sand and gravel are carried from surrounding slopes onto roadways, trails, and into Los Peñasquitos Creek, Lopez Creek, and other streams within the Preserve during rainstorms. The eroded material entering the creek and streams eventually is deposited in Los Peñasquitos Lagoon contributing to an ongoing siltation problem. Prehistoric sites are being damaged by erosion and historic sites are suffering from the effects of wind and rain.

Much of the erosion and redeposition will continue undisturbed as part of the natural process of succession. Urban runoff, storm drains, and human disturbance, however, are accelerating the natural process by concentrating flows, increasing flow velocity, and damaging slope vegetation and cultural resources. The resultant erosion is causing safety hazards, extreme siltation redeposition, and

loss of valuable habitat. Erosion after winter storms has been so severe that the Preserve has been closed to the public for months at a time. Correction of storm-related erosion is needed on a priority basis to prevent further destruction of natural and cultural resources. Areas of specific concern are several areas east of Black Mountain Road; several areas where Lopez and Los Peñasquitos canyons merge; the entire length of the Lopez Canyon floor; and several north-south tributary canyons (Figure 4 illustrates these areas of concern).

BRUSH MANAGEMENT

From a habitat management perspective, coastal sage scrub and chaparral vegetation should undergo regular controlled burns to encourage new and more robust growth. Additionally, controlled burns eliminate or reduce the level of accumulated vegetative fuel-loading which can be hazardous and make controlling a wildfire much more difficult, similar to the situation in Laguna Hills. The Preserve's urban setting makes controlled burns expensive in the short-term due to the need to insure the safety of the surrounding development but less expensive in the long-term as the results last longer than other brush control measures and, therefore, do not need to be conducted as often. A brush thinning program and firebreaks in appropriate locations are less problematic fire control methods which are currently implemented regularly by the Park and Recreation Department throughout the City. Some of the Preserve property is included in this effort each year.

CONSTRAINTS AND OPPORTUNITIES

The Los Peñasquitos Canyon Preserve offers an opportunity to combine recreational and community planning with the protection and enhancement of natural resources.

The Los Peñasquitos Canyon Preserve Natural Resource Management Plan recognizes the following constraints.

- The primary purpose of this Management Plan is to protect, preserve, and enhance natural resources in the Los Peñasquitos Canyon Preserve. Since, however, the Preserve is in an urban setting, management of the Preserve must consider the proximity of residential and recreational uses and cannot be managed solely as wildlife habitat.
- The extent of adjacent development, historic resources disturbance, and current recreational
 pressures within the City surrounding the Preserve preclude ever returning all of the Preserve to
 the undisturbed habitat it once was.
- Protection of natural resources, as required by state and federal law precludes certain human activities (e.g., construction, dredging, recreation) from certain areas and during certain seasons.
- The majority of soils within the Preserve have the highest run-off potential and severe erodibility
 ratings, making siting of trails and other facilities difficult as well as increasing future management
 problems such as erosion control.
- Ownership and management of the Preserve includes both the City and County of San Diego which requires coordination between jurisdictions to ensure compatibility of uses and activities.

Opportunities for preserving wildlife habitat and maintaining a recreational resource include the following.

• Comprehensive planning and management can provide adequate protection measures for natural

resources.

- Areas of previously grazed and degraded habitat can be restored to improve the overall natural resource system in the Preserve.
- Habitat improvement or conversion can be used for mitigation for future losses.
- The Preserve system, including biological and historical resources, can be used for educational and research purposes.
- Many recreational activities in the Preserve are compatible with most resources.
- The size of the Preserve can support a wide spectrum of habitat and wildlife; as well as, allowing
 recreational use in areas separate from those requiring sensitive species protection and habitat
 enhancement.

LAND USE PROPOSALS

Scheduled future land use projects in and adjacent to Los Peñasquitos Canyon Preserve fall into three categories: private development and easements; Preserve enhancement; and Preserve and utility infrastructure maintenance. Private development projects are not permitted within Preserve boundaries; however, proposed projects adjacent to the Preserve are included in this section as they could indirectly impact the Preserve. The County and City of San Diego are continually in the process of restoring and enhancing natural, cultural, and historic resources within the Preserve. The City also identifies and conducts maintenance and recreation projects within the Preserve. All projects will need to comply with the Los Peñasquitos Canyon Preserve NRMP guidelines and obtain permits, as needed, consistent with California Environmental Quality Act (CEQA), federal, City, and, if on County land, County requirements. Any mitigation programs required should incorporate the guidelines set forth in this Plan, as appropriate.

PRIVATE DEVELOPMENT AND EASEMENTS

Known projects currently being developed or proposed for development adjacent to Preserve boundaries include the following list.

CARMEL VALLEY COMMUNITY PLANNING AREA

<u>Neighborhood 10</u> - Precise Plan for 683-acre residential, commercial, school, and park uses along a 7,200-foot shared Preserve boundary (City Case No. 91-0834 and No. 91-0547). Council approved Project on 9/20/94, for 806 dwelling units on 450 acres. Site grading is complete.

FUTURE URBANIZING AREA

<u>Peñasquitos Estates</u> - Processing suspended on coastal development permit for residential development tentative map (City Case No. 90-0337). Project application is void. The land will be deeded to the City and incorporated into the Preserve as part of the approval that was granted by City Council for the Torrey Reserve Project.

<u>Subarea IV Plan (Torrey Highlands</u>) - Council adopted a Subarea Plan for Torrey Highlands in August 1996. The Plan for the entire community includes: 2,693 residential units; industrial, commercial, office, and City operations land uses; and open space which includes McGonigle Canyon. Before the Plan can be implemented, however, a phase shift from "Northern Future Urbanizing Area" to "Planned Urbanizing Area" is required. A phase shift vote is scheduled to be placed on the November 1996 ballot.

<u>Subarea V Specific Plan</u> - Council is scheduled to consider adoption of the Subarea V Specific Plan in July 1996. Public review has been completed. Plan includes provision for 688 residential units, 300 resort hotel rooms, 133 resort housing units, an 18-hole golf course and designated MSCP open space preserve area in the eastern part of Del Mar Mesa.

RANCHO PEÑASQUITOS COMMUNITY PLANNING AREA

<u>Vista Alegre</u> - Construction of homes will be limited to a previously graded area north of Park Village Development (adjacent to land trade area) and adjacent to the Cal Trans Vernal Pool Preserve and the fringe canyon running parallel to Darkwood Street. Currently, the remaining, ungraded chaparral and vernal pool habitat is being left undisturbed.

SORRENTO HILLS COMMUNITY PLANNING AREA

Sorrento Hills Community Plan Amendment and Park Trade Property - Amendment for addition of 178-acre park trade parcel and residential, commercial, and industrial land uses has been approved (City Case No. 91-0361).

<u>Torrey Reserve Terrace</u> - City Council approved the proposed rezone, tentative map, hillside and coastal permit for 8.9 acres of industrial and 10.9 acres of residential use and about 20 acres of open space, to be deeded to the City for inclusion in Preserve, on a 40-acre tract (City Case No. 91-0540). Project undergoing California Coastal Commission review and approval process.

MIRA MESA COMMUNITY PLANNING AREA

Camino Park - Proposed residential development on 48 acres adjacent to Preserve at northern

terminus of Camino Ruiz (City Case No. 89-1020). Housing development plans have been dropped and a park site and open space are proposed at the end of Camino Ruiz instead.

Monarch Estates - Ongoing 142-acre residential development on Lopez Ridge. Grading completed. Construction ongoing.

<u>Mira Mesa Hubsite</u> - Approved conditional use permit for a cable transmission station within Monarch Estates development (City Case No. 90-0519).

Monarch Pointe and Monarch Pointe East - City Council approved residential development on 37 acres on Lopez Ridge (April 1994) (City Case No. 90-0143). Grading has been completed.

<u>Shaw-Lopez Ridge</u> - City Council approved residential development on 13 acres on Lopez Ridge and Lopez Canyon (June 1990). Construction is nearing completion.

<u>Sunset Pointe</u> - Proposed residential development on Lopez Ridge (City Case No. 89-0634). Applicant put project on hold.

<u>Vista Sorrento Parkway</u> - Approvals have been obtained for construction of Vista Sorrento Parkway over Peñasquitos Creek, east of the merge and parallel to it.

<u>I-5/805 Widening</u> - CALTRANS and Federal Highway Administration is widening the existing 8-lane freeway to 10 lanes between Carmel Mountain Road and Carmel Valley Road at western end of Preserve. Grading has begun.

PRESERVE RESTORATION AND ENHANCEMENT PROJECTS

HABITAT RESTORATION AND ENHANCEMENT

Many areas in the Preserve need restoration to remove nonnative, invasive species and replace them with the appropriate native vegetation, while others would benefit just from removal of nonnatives providing the opportunity for natives to re-colonize the area naturally.

Figure 8 identifies medium and high priority opportunities for restoration. The proposed sites extend from the westernmost Preserve boundary, through the entire length of Los Peñasquitos Canyon, and to just east of the County Water Authority Crossing. Additionally, some restoration work is targeted in tributary canyons, such as El Cuervo Canyon. The need for most of this restoration effort arises from past land use activities, such as grazing and agriculture. Through the main canyon, emphasis is on restoring riparian, riparian oak woodland, and freshwater marsh habitats. Vernal pool habitat areas occurring within the Preserve may lend themselves to restoration; although, these efforts are usually more successful when enhancing/restoring existing pools rather than creation of new pools. Opportunities for coastal sage scrub/chaparral restoration occur in some of the side canyons. One restoration project recently completed and undergoing monitoring is the CALTRANS project which replaced nonnative vegetation with southern sycamore riparian woodland south of the Ranch House.

Enhancement involves only the removal of exotic, invasive, and/or nonnative species or the provision of conditions designed to improve the habitat for a species, thereby, encouraging additional growth or useage. Opportunities for vegetative enhancement within the Preserve are usually too small and too numerous to identify on Figure 8. An example of this type of project is the removal of about 20 palm trees behind the Ranch House. A limited number of willow, cottonwood, sycamore, and mulefat vegetation was planted in the area to accelerate the native re-colonization of the area. Eucalyptus and artichoke thistle are a few of the invasive, nonnatives which the City is targeting for removal.

HISTORICAL RESOURCE RESTORATION

<u>Preserve-wide</u> - A site-specific management plan for all prehistoric and historic resources in the Preserve is proposed to include a data recovery program, individual site inventory, and recommendations for maintenance management and long-term protection of resources. A similar plan for the Ranch House complex already exists so it will not be included in the proposed Cultural Resource Site Management Plan. Development and implementation of the proposed management plan will include Native American involvement.

<u>West End</u> - Presently, no additional protection measures are planned for El Cuervo Adobe. A restroom and interpretive site facility are identified in the Master Plan for this area.

<u>East End</u> - Restoration of the Los Peñasquitos Ranch House has been completed. The County is currently directing their efforts toward the restoration of the outlying buildings, such as the spring house. Plans also include re-creating a 19th century rancho atmosphere by developing a model of a working ranch including adding cattle, horses, other farm animals, a small duck pond, and orchard.



RRIDORS



NHANCEMENT AREAS



FIGURE


Other miscellaneous facilities outlined in the County plans which have been completed include a picnic area, paving the visitor parking lots, extension of public services, and landscaping.

TRAIL CLOSURES AND DEVELOPMENT

Not every trail in the Preserve is in an appropriate, approved location. Some are volunteer trails created by public foot or bike traffic for user convenience or adventure without considering potential erosion or impacts to cultural and natural resources. To protect resources and minimize erosion in the Preserve, the following list of trails, illustrated in Figure 9, have been designated for closure and restoration:

- 1. Close cattle track, Lopez Canyon, northside;
- Close and revegetate one of the two SDG&E access roads from Calle Cristobal down into Lopez Canyon (requires agreement and involvement from SDG&E);
- Close and revegetate easternmost road of the two SDG&E access roads from south rim of Lopez Canyon down to canyon floor (requires agreement and involvement from SDG&E);
- Close and revegetate dirt access road parallel to Camino Santa Fe on southeastern side and dropping down into the bottom of Lopez Canyon;
- 5. Close and revegetate the "volunteer" trails parallel to the El Cuervo Adobe Trail;
- 6. Close and revegetate SDG&E access road into Los Peñasquitos Canyon from Calle Cristobal, as alternate access is now available via Calle Cristobal and an approved designated trail already exists from this point to canyon bottom;
- Close and provide "no safe access" signs to three trails on north-facing slopes from Lopez Ridge;

- Investigate illegal trial from Mira Mesa for erosion problems and take remedial action as appropriate;
- 9. Close and provide "no safe access" signs at Waimea major and minor trails;
- Close and provide "no safe access" signs for several volunteer trails on central south; facing slopes due to steepness;
- Fix, lock, and maintain gate at SDG&E's access road running along western flank of Park Village development pads on south-facing slope and revegetate small, unnecessary spur road (requires agreement and involvement of SDG&E);
- Close and revegetate the two outer dirt Metropolitan Wastewater Department (MWD) access roads running parallel from Carson's (Beale's) Crossing west toward waterfall, keeping open the middle road (requires agreement and involvement of MWD);
- Close and revegetate northernmost access road from Ranch House complex to Carson's Crossing;
- Close and revegetate two of the El Cuervo Adobe Crossings, designate the crossing east of the Adobe as official (improvements may be required); and
- Relocate the MWD's access road above the Waterfall Crossing to within their sewer line easement. Close and revegetate the abandoned area of road.
- Relocate MWD's access road from the wetland area at the confluence of Lopez and Los Peñasquitos canyons to within their sewer line easements. Close and revegetate the abandoned area.

Proposed trail improvements and trails to be designated as legal include:

- Improve Camino Park/Horse's Head Trail to control erosion and designate it as an approved trail;
- Investigate feasibility of improving and designating Old Carmel Valley Wagon Trail as an approved trail;
- Improve, sign, and monitor for erosion the two Peñasquitos Creek Park trails along the northeast edge of Peñasquitos Creek Park;
- 4. Designate Mystery Tree Loop as an official trail and improve as necessary;
- 5. Designate trail from Ranch House west to Carson's Crossing as an official trail after rerouting trail around small area of riparian habitat;
- Designate the southernmost service road beginning just north of the Ranch House Complex fence to Carson's Crossing after providing improvements to provide a more level surface as an official trail;
- 7. Designate the Sycamore Crossing, one-half mile west of the waterfall as official; and
- 8. Improve west side of "No Horses" Crossing with a small bridge or large rocks.

PRESERVE MAINTENANCE PROJECTS

The City and County of San Diego maintain Los Peñasquitos Canyon Preserve for safety, sanitation, and habitat management reasons. The following maintenance activities are conducted within the Preserve.

- 1. <u>Restroom Cleaning</u> (City and County Park and Recreation Departments) once a day.
- 2. Litter Control (City and County Park and Recreation Departments) twice a week in

parking lots and picnic areas; annual cleanup in other areas; and special volunteer projects for litter and illegal encampment removal as needed.

- <u>Removal of Illegally Dumped Material</u> (City Park and Recreation Department) as soon as possible, where needed.
- Removal of Manure from Equestrian Trails and Parking Lots (City and County Park and Recreation Departments) - as soon as possible, where needed.
- <u>Graffiti Removal</u> (City and County Park and Recreation Departments) as soon as possible from Preserve facilities.
- Maintenance and Installation of Gates, Chains, and Locks (City and County Park and Recreation Departments) - needed to prevent illegal entrance as needed.
- Signs (City and County Park and Recreation Departments) replacement, repair, and cleaning as needed.
- Picnic Areas (County Parks and Recreation Department) flail mow and weed to prevent fire and safety hazards in the spring after native plants go to seed (April or May).
- <u>Removal of Safety Hazards</u> (City and County Park and Recreation Departments) safety hazards, such as fallen trees or hanging limbs, along the trails are removed and placed, as needed.
- <u>Removal of Improper Public Activities</u> (City and County Park and Recreation Departments) - activities, such as transient encampments, tree houses, swings, or ropes in trees, placed in the Preserve illegally by the public are removed, as needed.
- <u>Removal of Exotic, Nonnative Plants</u> (City and County Park and Recreation Departments)
 as and where needed, by City staff or volunteers trained and/or supervised by City staff.

- 12. <u>Brush Management</u> (City and County Park and Recreation Departments) brush removed within 100 feet from structures on adjacent property, per City Landscape Technical Manual, to address Category I fire hazards, as needed based on an annual evaluation.
- Major Trail Maintenance (City and County Park and Recreation Departments) major repair of trails once a year after any rainy season damage; Minor repairs done throughout the year as needed.
- <u>Road Repair</u> (City Metropolitan Wastewater Department and County) roads within Preserve graded and repaired once a year after rainy season.
- Parking Lot Repair (City and County Park and Recreation Departments) parking areas maintained once a year after rainy season to repair damage.
- 16. <u>Sewerline Service</u> (City Metropolitan Wastewater Department) service manholes, monitor and maintain sewerlines once a year; emergency repair, as soon as possible.
- 17. <u>Powerline and Right-of-way Maintenance</u> (San Diego Gas & Electric) general maintenance once a year; emergency repair, as soon as possible.

MAINTENANCE, USAGE, AND DEVELOPMENT GUIDELINES

The Los Peñasquitos Canyon Preserve is open to the public and is heavily used. In addition, utility easements and facilities and park facilities need regular maintenance and improvement. The following guidelines are provided in order to protect native habitat and wildlife while preserving the natural park experience for everyone. Maintenance activity guidelines necessary for public safety and preservation of natural resources are also provided. If any maintenance activity adversely impacts the existing conditions, mitigation will be required as outlined in the MITIGATION OPTIONS AND GUIDELINES section.

UTILITY MAINTENANCE

- Applicable city, state, and/or federal permits will be required prior to maintenance activity. Additionally, all such activity will comply with guidelines in this Plan. Park and Recreation Department approval of project design, implementation, and mitigation to ensure the guidelines adopted in this Plan are being incorporated.
- Per Council Policy 700-17, necessary underground public facilities are permitted to cross, open space areas if no permanent damage is sustained. Revegetation would be required, as well as, any other required mitigation outlined in appropriate permits.
- 3. A Memorandum of Understanding or Letter of Agreement with each utility which conducts maintenance activities within the Preserve should be developed to outline specific conditions for maintenance of their facilities and easements.
- 4. All SDG&E and City work crews must have undergone training programs to make crews alert to sensitivity of the habitats in which they are working. The City has a training program for crews working in environmentally sensitive areas as well as a brochure. Crews will be routinely trained and advised on how to do their work to minimize environmental impacts.
- 5. Maintenance activities and use of easements provided for San Diego Gas and Electric

(SDG&E), County Water Authority, and City Metropolitan Wastewater Department must be coordinated primarily with a City Preserve Ranger, who will in turn notify County Preserve Ranger, if necessary, and the Natural Resource Manager in the City Park and Recreation Department. Notification of the appropriate City and County staff should also happen as soon as possible when emergency action is required.

- 6. If a maintenance activity could result in indirect or direct impacts to surrounding habitat or sensitive resources, the immediate area undergoing maintenance should be coned or flagged by a Park Ranger, Natural Resource Planner, or qualified biologist and/or archaeologist to aid the maintenance personnel in keeping the impact confined to the project area.
- 7. Prior to maintenance activity which disturbs substrate, a site check for archaeological resources will be conducted by a qualified archaeologist. Results should be given to the County (Contact: Chief, Special Operations) and City (Contact: Park Ranger or Natural Resource Planner for review by Development Services archaeologist) for review and evaluation. If potential indirect impacts exist, the site will be flagged to keep work crews away. If direct impacts are found to be likely, the project should: first, try to avoid the area; secondly, minimize the impact; and lastly, develop and implement a plan for recovery of resources subject to approval by City and County contacts provided earlier. Native American consultation should be made, as appropriate during impact analysis and mitigation design and implementation.

A stewardship program for prehistoric and historic resources should be instituted for the Preserve in conjunction with a Cultural Resource Site Management Plan, outlined under <u>Historic Resource Restoration</u> in the <u>Land Use Proposal</u> Chapter. The steward would then be involved in consultations about projects and possible impacts to cultural sites.

- Regular maintenance activity and new construction would avoid nesting/breeding season (March - September 15).
- 9. If work crews find an unidentified plant, nest, or burrow on the project site, the Project

Biologist will be contacted. The Project Biologist will determine appropriate action to avoid or minimize impacts prior to work resuming.

- 10. Utility easements and siting of access roads should be reviewed to identify changes which could be made to minimize the impact on sensitive areas and species, cultural sites, wetlands, erosion, and aesthetic values. No activity should increase the size of existing access roads. Specifically, the feasibility of re-routing the Metropolitan Wastewater access road at two locations on the Northern Preserve slope, east and west of the Falls, will be evaluated to eliminate and/or reduce impacts to sensitive vegetation. If re-routing is accomplished, the vacated area(s) would be available for sensitive plant/habitat restoration.
- Parking or driving under oak trees and all large trees is not permitted in order to protect tree root system.
- 12. Stream crossings by vehicles will be limited to reduce water quality impacts.
- All construction and maintenance materials will be disposed of in an appropriate manner and not in or near wetlands.
- 14. All construction and maintenance activities should use best management practices, see Appendix F, for erosion control at construction/work site and should provide for park user safety, such as temporary signs and/or barricades.
- 15. Erosion or access roads will be minimized using appropriate measures, such as water bars.
- 16. For any grading work, dust will be controlled with regular watering.
- 17. Mowing, rather than grading, should be the method of vegetation removal if needed to eliminate/reduce fire hazard, to provide safe access, or to improve view of utility facility.
- 18. Additional guidelines for SDG&E maintenance activities include:

- 66 -

- Maintenance activities will avoid being conducted during the rainy season when soils are wet;
- · All vehicles, personnel, and equipment will remain on the existing right-of-way; and
- Any accidental damage to Preserve habitat outside the right-of-way will be mitigated per the "Subregional Natural Community Conservation Plan" (NCCP) (1995) as outlined in the MITIGATION OPTIONS AND GUIDELINES section of this Plan and SDG&E NCCP. The NCCP requires projects go through a mitigation process for direct and indirect impacts. Forms of acceptable mitigation, in order of importance, include: avoidance; on-site mitigation; fee-owned easements dedicated to the MSCP; and mitigation bank credits at Miguel Mountain.
- SDG&E will conduct all operations within the Preserve according to "Operational Protocols" outline in their NCCP. This NCCP serves as a 50-year permit with USFWS and CDFG and meets the requirements for the federal and state endangered species acts for 25 years, with an option for renewal up to 50 years.
- Additional guidelines for County Water Authority and City Metropolitan Wastewater Department maintenance/emergency activities include:
 - Maintenance activities will avoid being conducted during the rainy season when soils are wet;
 - All vehicles, personnel, and equipment will remain with the approved easement; and
 - Any accidental damage to Preserve habitat outside the easement will be mitigated per the MITIGATION OPTIONS AND GUIDELINES outlined in this Plan.
 - Within the Water Authority easement, temporary impacts will be mitigated through on-site
 restoration, where feasible. Riparian woodland trees, however, would not be replaced on
 site due to the damage to pipelines from root systems. This permanent impact would be
 mitigated off site through habitat purchase or enhancement. Mitigation details would be
 outlined as part of the permit process with appropriate agencies.

PUBLIC USE

1. All trail users should remain on designated trails for protection of adjacent sensitive

resources and for their own protection.

- Horseback riding, hiking, and bicycling are allowed on designated trails only. Signs identify appropriate uses for Preserve trails. All undesignated trails are closed to Park users.
- Horseback riders should use designated horse rest and grazing areas identified and fenced off with pole and chain or hitches when not riding or walking with the horse.
- Domestic animals will be on a leash at all times within the Preserve and will remain on service roads and in public areas.
- 5. Monitoring program for hang-gliding/para-sailing area will be continued for as long as hang-gliding or para-sailing permit is active. This use will be prohibited (permit revoked) if damage to the Preserve is found. It may be necessary to have a small brow ditch built below the damage area to collect runoff and reduce sediment transport to Preserve creeks.
- 6. All litter should be placed in garbage cans placed in the Preserve.
- Fishing is allowed currently in Los Peñasquitos Creek. Fish populations, however, are being monitored and results will determine future fishing sites.
- 8. Park rangers shall enforce State law, City ordinances, and Preserve policies.

PRESERVE MAINTENANCE

- 1. If required, all applicable city, state, and/or federal permits will be obtained prior to maintenance activity. Additionally, proposed activity will comply with guidelines in this Plan.
- If a maintenance activity could result in indirect or direct impacts to surrounding habitat or sensitive resources, the immediate area undergoing maintenance should be coned or flagged by a Park Ranger, Natural Resource Planner, or qualified biologist and/or archaeologist to

aid the maintenance personnel in keeping the impact confined to the project area.

3. Prior to maintenance activity which disturbs substrate, a site check for archaeological resources will be conducted by a qualified archaeologist. Results should be given to the County (Contact: Chief, Special Operations) and City (Contact: Park Ranger or Natural Resource Planner for review by Development Services archaeologist) for review and evaluation. If potential indirect impacts exist, the site will be flagged to keep work crews away. If direct impacts are found to be likely, the project should: first, try to avoid the area; secondly, minimize the impact; and lastly, develop and implement a plan for recovery of resources subject to approval by City and County contacts provided earlier. Native American consultation should be made, as appropriate during impact analysis and mitigation design and implementation.

A stewardship program for prehistoric and historic resources should be instituted for the Preserve in conjunction with a Cultural Resource Site Management Plan, outlined under <u>Historic Resource Restoration</u> in the <u>Land Use Proposal</u> Chapter. The steward would then be involved in consultations about projects and possible impacts to cultural sites.

- Access should be maintained for emergency and maintenance vehicles. Road maintenance should be limited to clearing or thinning brush and smoothing the road surface within the existing roadway.
- 5. All road repair and maintenance activity should be confined to the roads and easements themselves. Work should be planned and coordinated with appropriate personnel and agencies in advance to ensure no impacts to known biological and archaeological resources.
- 6. All fences and gates will be kept in good repair and, when necessary, promptly replaced.
- All maintenance activities should use best management practices (Appendix F) for erosion control at the work site.

- 8. Replace culverts with dips whenever appropriate for better erosion control.
- 9. Stream crossings by vehicles will be limited to reduce water quality impacts.
- 10. Trail (hiking, bicycling, and equestrian) maintenance will be initiated based on Park Ranger inspection and coordinated with biologist and/or archaeologist, as necessary...
- 11. Trails closures should be instituted to: allow native vegetation to recover; facilitate wildlife movement; protect archaeological and biological sensitive areas; allow added protection for sensitive species during breeding season; provide erosion control; ensure public safety; and allow for trail maintenance. Such closures may be temporary or permanent depending on the need.
- 12. Existing and proposed trails will be regularly evaluated by a qualified biologist and/or Park Ranger for impacts with consideration given to soil type (erodibility and sensitive species/habitat in the vicinity).
- Periodic fencing of trails may be needed to keep people on the trails and out of sensitive areas.
- 14. Refurbish existing trails and relocate, if necessary, to be more environmentally sensitive.
- 15. Poison oak and other human nuisance plant species should be controlled only around highly used public areas, such as restrooms, trails, parking lots, historic points of interest, and interpretive displays. In other areas it should be allowed to remain part of the natural system.
- Los Peñasquitos Equestrian Center will load manure in dumpsters and have it removed daily by a licensed firm to avoid contamination of the stream.
- Equestrian trails need to be cleaned frequently using manual, not mechanical methods by City and County forces.

- 18. Brush management activities (fire breaks, brush thinning, controlled burns) would be done in accordance with City Fire Department and Development Services Department regulations. Brush management actions are exempt from mitigation requirements in this document as long as sensitive habitats and species are avoided. Brush management activities in coastal sage scrub habitat, however, are subject to U.S. Fish and Wildlife restrictions due to the listing of the California gnatcatcher as threatened. Additionally, any coastal sage scrub vegetation removed will be reported to Development Services as "take".
- A reporting and enforcement procedure should be developed to prevent residential and/or landscape encroachment into the Preserve.

NEW DEVELOPMENT

- Applicable city, state, and/or federal permits will be required prior to development activity. Additionally, all such activity will comply with guidelines in this Plan. Park and Recreation Department approval of project design, implementation, and mitigation to ensure the guidelines adopted in this Plan are being incorporated.
- 2. Any new project within the Peñasquitos Creek and Lopez Creek watersheds affecting water quality or quantity downstream should follow Regional Water Quality Control Board (RWQCB) standards and conduct monitoring studies for a period of time to include one season of normal rainfall. Any impact discovered during this monitoring period will require mitigation. Any upstream project resulting in future changes to stream flows should consider the natural resources management policies for Los Peñasquitos Canyon Preserve.
- Development, construction, or maintenance design or activities should avoid concentrating runoff.
- Any new development adjacent to the Preserve should provide a buffer or setback sufficient to accommodate brush management activities and mitigation for such activities, if required, outside the Preserve, at least Zones 1 - 3.

- Wherever a culvert-like structure is required, consider a dip-section instead, as they have proven to be more stable during heavy stream flows.
- Development of new trails requires City (and, in some cases, County) environmental review per state law (CEQA). In some stream crossing cases, a CDFG streambed alteration permit may be required.
- 7. New trails should be planned on north-facing slopes in chaparral, away from the coastal sage scrub habitat of the threatened gnatcatcher, which is usually found on south-facing slopes, and all other sensitive habitat.
- New trail construction and any other construction resulting in subsurface disturbance should be monitored by a Native American consultant and/or qualified archaeologist for impacts to prehistoric and historic resources.
- 9. Rehabilitation of existing trails or creation of new trails should use design criteria which reduce existing or potential impacts. Impacts should be determined through biological and cultural resource assessment survey. For example: minimize the number of creek crossings and pass through riparian vegetation corridor only intermittently to prevent continuous disruption of wildlife movement.
- Trails from neighboring communities should be limited in number. The possible locations should be studied in advance to avoid sensitive habitats and archaeological sites, be the most practical, and control erosion.
- 11. Siting of trails should not follow ecotones (edges between plant communities) but rather be limited, if possible, to a single trail which winds through each plant community and crosses ecotone boundaries. This optimizes interpretive and recreational value while protecting the multiple species which often congregate in ecotonal areas due to the increase in biological diversity.

- 12. Trails should be relocated to avoid/protect endangered or sensitive plant species, key wildlife breeding habitats, and archaeology sites with surface artifacts.
- 13. Trails should be located to avoid introducing adverse impacts, such as avoidance of slopes from adjacent residential development and of areas with highly erodible soils.
- 14. Alternative trail and access road surfaces should be considered for erosion control. Possible alternatives include: gravel; fiber matting, polymer-based compounds; mulching with organic or non-organic materials; and other measures, such as culverts or logs diagonally crossing the trail, should be used to control erosion.
- 15. Stream crossings by vehicles will be limited to reduce water quality impacts.
- 16. Erosion from construction of trails should be limited by:
 - Constructing trails parallel to slope contours with cross-slope toward downhill side of trail;
 - Embedding large rocks or logs perpendicular to trails wherever it must to directly cross a slope;
 - Using pipe culverts with riprap on downstream side of trail where water seems to concentrate; and
 - Embedding a course of large rocks along downhill edge of trail where natural drainage swales must be crossed.
- 17. A biological buffer zone of at least 100 feet should be established around sensitive habitats, listed in the SENSITIVE RESOURCES section of this Plan, and areas of heavy public use, such as parking lot/staging areas, trails, interpretive displays, or restrooms. A smaller or larger buffer may be necessary based on site-specific biological resource information.
- If barriers are needed, preference should be given to using a rustic style, such as split rail or post and rail fencing, or natural barrier plantings, such as wild rose (<u>Rosa californica</u>), blackberry (<u>Rubus ursinis</u>), cactus (<u>Opuntia sp.</u>), or logs from fallen trees.

- 19. Within Preserve boundaries, maintenance roads, footpaths, and equestrian and bicycling trails will be unpaved to maintain the natural character of the Preserve. Other than the existing west end paved parking/staging area, parking lots will also be unpaved.
- 20. Paved areas should be kept to a minimum to avoid water quality, hydrology, and aesthetic impacts.
- Any lighting needed for public safety in the Preserve or adjacent to the Preserve should be hooded, directional, low intensity sodium vapor lights, especially near biological buffers.
 Placement of lighting should consider the sensitivity of adjacent biological resources.
- 22. Concentrate noise activities away from habitats where sensitive animal species occur or are likely to occur. These areas are variable depending on seasonal requirements of biological resources in the area.

MITIGATION OPTIONS AND GUIDELINES

Although Los Peñasquitos Canyon Preserve is a natural habitat Preserve, necessary structures and some maintenance activities will be required which may impact existing natural habitat and/or cultural resources. Biological and archaeological surveys are required prior to obtaining permits and any site disturbance. Applicable city, state, and federal permits will be required. Any project should additionally comply with applicable guidelines outlined in this natural resource management, adopted by City Council. Park and Recreation Department approval of project design, implementation and mitigation will be required to ensure the guidelines adopted as part of this Plan are being incorporated.

Impacts should be minimized or eliminated as much as possible during design and planning and permitting phases. Maintenance activities should be planned in advance using the least disturbing methods, avoiding breeding season, using existing access ways, and restricted to the project area. Prior to any trail addition or other park development, the area to be affected should be surveyed for cultural resources and sensitive habitat, plant, and animal species, at the appropriate time of year. For instance, surveying for San Diego barrel cactus, San Diego sagewort, and summer holly could take place year-round, but surveys for San Diego button celery, ashy spikemoss, and short-leaved dudleya are seasonally dependent. Erosion control projects should be evaluated with consideration given to willowy monardella. All proposed projects shall avoid any vernal pool site which may exist in the Preserve. Only existing access ways are to be used for any maintenance activity in the Preserve.

If unavoidable impacts, direct or indirect, occur the following guidelines provide an appropriate framework for mitigation. Mitigation options for impact to or loss of riparian, coastal sage scrub, oak woodland, and chaparral habitats are the creation of new habitat and/or enhancement of existing disturbed or degraded habitat. These guidelines are also appropriate for any restoration of degraded habitat and for maximization of wildlife value. Mitigation for riparian habitat requires special treatment to ensure habitat value is offset. Additional requirements may be added should they be necessary for creation of viable riparian habitat.

HABITAT MITIGATION

- No net loss of freshwater marsh, riparian, vernal pool, coastal sage scrub, oak woodland, native grassland, or chaparral habitat will be allowed without replacement of equal or greater habitat value, including quality as well as quantity.
- Proposed development or maintenance projects resulting in impacts should be required to reevaluate their proposed design to avoid the impacts. Grading plans should provide adequate buffer areas to adjacent habitat and/or sensitive areas.
- 3. Unavoidable impacts will need to be mitigated at a ratio sufficient to ensure no net loss, including loss of interim habitat function. Mitigation ratios for habitat impacts will be decided on a case-by-case basis, using Development Services Department and resource agencies (CDFG and USFWS) guidelines.
- Mitigation is required within the Preserve, preferably on or adjacent to the project site.
- 5. A Mitigation, Monitoring, and Reporting Program will need to be developed for any mitigation project. The program should outline: what will be done; what criteria will be used to determine success; a schedule of work and monitoring; means of funding the program; penalties for nonperformance, and a plan for remedial measures should they be necessary. The program should also include:
 - A variety of habitat types to encourage diversity of species;
 - · Vertical and horizontal plant diversity;
 - Irregular, rather than straight, borders where vegetation is especially dense, extensive, and connected to other habitat areas;
 - · Wildlife areas of concentration where vegetation is especially dense, extensive, and

connected to other habitat areas;

- Only appropriate native plants in revegetation. Appendix D provides native plant lists recommended for revegetation habitats found in the Preserve;
- Human impacts in designing revegetation projects, such as the use of thorny shrubs, etc. to limit access to sensitive areas;
- · Temporary irrigation, if necessary, to help establish new vegetation; and
- Non-native, invasive species removal on a regular basis.
- 6. A qualified biologist should monitor sensitive areas impacted and/or potentially impacted during construction and oversee mitigation programs. A qualified biologist is defined as "experienced" in state-of-the-art revegetation techniques of wetland and upland habitat and if on County property, listed on County of San Diego's Department of Planning and Land Use list of qualified biological consultants. Qualified biologist will: 1) prepare and oversee a detailed revegetation plan, meeting City Landscape Guidelines and guidelines outlined in this Plan, including species, soil preparation, and site plan; 2) assist a landscape architect, if needed, in preparation of landscape working drawings to assure species comparability, and to review planting requirements, and revegetation techniques; and 3) develop and oversee a Monitoring, Maintenance, and Reporting program.
- 7. Prior to their implementation, all projects involving revegetation and/or mitigation within the Los Peñasquitos Canyon Preserve must be reviewed and approved by: the City Park and Recreation Department (District Manager and Natural Resource Manager) if City land is involved; and County Park and Recreation Department (Chief, Special Operations), if County land is affected. The review process should include, as appropriate, recommendations from Citizen's Advisory Committee. In the case of an SDG&E project, compliance with their "Subregional Natural Community Conservation Plan" (1995) will be the primary basis for approval.

- Revegetation efforts are best scheduled between October and February after the first rain if no irrigation is to be used.
- 9. Field checks by a qualified biologist of sensitive areas near the work area will be required prior to work to ensure they have been properly flagged and protected from intrusion.
- 10. Temporary fencing and/or barriers, if necessary, should be provided to protect revegetation areas from human intrusion until they become well established.
- Revegetation sites should be monitored regularly by a qualified biologist. Appropriate recommendations should be made for enhancing revegetation efforts to ensure success criteria are met.
- 12. Stream bed crossing requires a CDFG permit. Other permits may be required if crossing involves fill or dredge material. Any crossing should be done during seasons of low water flow (e.g. summer) to minimize the impacts on the stream.
- 13. Any disturbance of stream banks which would cause erosion and/or create a potential erosion risk should be mitigated by revegetating the disturbed area as soon after the disturbance as possible. Bank protection, such as mulch or jute netting, may be required in the interim period.

CULTURAL RESOURCE MITIGATION

Development proposed in the Master Plan which would potentially impact archaeological sites include: Los Peñasquitos Canyon main trail; Lopez Canyon main trail; hiking trails; equestrian trails; activity centers at both ends; western vista points; and visitor center. Prior to development of plans for any of these or other development, a plot plan area to be developed should be submitted to the County Senior Project Manager, Los Peñasquitos Canyon Preserve for comparison to confidential archaeological site map on file to identify any potential impacts which could occur to known archaeological resources. The City of San Diego Resource Protection Ordinance requires: "Development not be permitted in significant prehistoric or historic sites or resources unless all feasible measures to protect and preserve the site or resource are required as condition of permit approval. Alterations and improvements to prehistoric and historic sites and resources that enhance, restore, maintain, or repair the site or resources and do not adversely affect the special character or value may be permitted." Additional mitigation guidelines include the following:

- 1. Impacts to cultural resources should be avoided through strict avoidance, capping, or a conservation easement.
- A Research Design and Data Recovery Program addressing a specific site should be developed and implemented by a qualified archaeologist for any activity impacting cultural resources.
- 3. Review by an 'Historic Sites Board', either City or County Board depending on the location, could be necessary depending on the development or maintenance activity proposed.
- 4. Sites that would potentially be subject to impacts should be tested to assess the extent and nature of the cultural resource site in case the majority of the site's resources are underground.
- 5. Native American consultation shall occur prior to approval and during implementation of any plan component.
- 6. Qualified archaeologist should be onsite of a development or maintenance project to monitor activity and should have the authority to halt, direct, or divert ground disturbance.
- Flagging, fencing, or other temporary measures should be provided to prevent accidental damage.

ENHANCEMENT AND RESTORATION GUIDELINES

These guidelines are provided for the enhancement and restoration of natural and cultural resources in Los Peñasquitos Canyon Preserve.

NATURAL RESOURCE ENHANCEMENT

1. The practice of controlled or prescribed burning is recommended for implementation in the Preserve. This practice effectively removes excess fire fuel providing reduced risk of an outof-control wildfire adjacent to surrounding neighborhoods and stimulating growth of natural coastal sage and chaparral vegetation. In addition, controlled burning of oak woodland understory is beneficial for that habitat. This practice should not be applied to riparian habitats which are not highly combustible and do not benefit from periodic burns.

Only small areas would undergo burning at any one time and only during or right after the rainy season, provided it was not a drought year, under the supervision of a contract burn specialist. Timing of controlled burns is dependent on specific habitat requirements and weather conditions. A schedule of burn areas by year would be developed but ultimate decisions based on the existing seasonal conditions would be made by fire specialists and approved by City and County.

A fire management policy and plan, consistent with the County-wide Plan currently being developed, would need to be prepared by fire specialists with experience in prescribed burns. The County and City biologists, rangers, and fire department personnel should all be involved in this effort. A description of the City's current Brush Management Program is included in Appendix E.

2. Areas where sensitive bird species are likely to nest (i.e., southern willow scrub habitat) or where sensitive plants are found will be closed to public access. These areas should be posted: "No entry during breeding/nesting season" or "No entry due to sensitive habitat/plants", as appropriate.

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- 3. Continuing sensitive species surveys should be conducted to monitor abundance and distribution. Due to the age of Loy's biological survey, an immediate objective should be an updated survey to verify existing data as provided in this document.
- 4. Annual monitoring surveys of all known sensitive plant species in the Preserve to determine appropriate and necessary protective management and enhancement measures.
- Update Preserve data base every five years, including plants, sensitive species, avifauna, and large mammals.
- In the future, if least Bell's vireo are found within the Preserve, an annual cowbird trapping program should be considered from April 1 - June 30.
- Creek crossings should be cobble-lined to be environmentally suitable for protection of the creek bed.
- All the erosion and potential erosion areas should be vegetated with native vegetation or should have other natural erosion prevention measures taken.
- A program to control the spread of poison oak should be implemented to keep open the Preserve trails and other designated visitor areas.
- 10. A program to eradicate non-native vegetation and replace it with native vegetation will be designed for any areas currently dominated by exotics, such as iceplant, pampas grass, castor bean, fennel, acacia, Japanese honeysuckle, pyrancantha, bottlebrush, sea fig, artichoke thistle, pine trees, tree tobacco, pepper trees, eucalyptus, palms, desert artichoke, Virginia creeper (Parthenocissus quinquefolia), giant reed (Arundo donax), and tamarisk (Tamarisk sp.). Non-native, invasive plant species should be surveyed for and removed semi-annually, when present, from biological buffers, freshwater marsh, vernal pools, and willow scrub habitats.

- 11. For exotics removed from stream banks, extra temporary precautions may be required, especially if root systems are removed. Removal should take place only at times of lowest flow and no rainfall. Roots should only be removed if necessary to eradicate exotic species and revegetate as soon as possible. Sandbags and/or brow ditches should be used to keep sediment from creeks.
- 12. When enhancing or restoring a native habitat, plants used in the revegetation effort should be taken from donor sites in proximity to the site, if possible. Other donor sites are possible if of similar ecotone and with the approval of City and/or County Park and Recreation Departments, as appropriate.
- Establish adequate buffers around sensitive plant populations to avoid trampling. Wherever possible, minimum buffer width should be 100 feet.
- 14. In places where pollution control is needed, grass filter strips and filtration trenches should be used. Filter strips, placed in the runoff flow path, should be relatively flat to slow and distribute flow and be planted with erosion resistant plants, such as close-growing grasses.
- 15. Conduct surveys to monitor deer and mountain lion population within the Preserve. A management plan may become necessary if this predator-prey relationship becomes imbalanced, using standard wildlife management practices, per California Department of Fish and Game.
- 16. Periodic monitoring of known wildlife corridors, as identified on Figure 7, for species usage as determined from track, scat, or other signs.
- Investigate any "new" corridors discovered to identify usage and degree of importance to wildlife.
- 18. Vernal pool areas within the Preserve, and in the vicinity of the Preserve for which the Park and Recreation Department has been given management and maintenance responsibility,

should:

- have a "baseline" survey made if one does not currently exist;
- · undergo regular site physical conditions and integrity monitoring;
- have trash removed;
- have invasive exotic species of vegetation removed;
- · have fence and gate repaired, whenever needed;
- have protective measures installed to minimize impacts from adjacent uses, as needed and as appropriate; and
- have an annual survey of biological resources done during March-April, blooming season.
- Identify potential restoration opportunities and implement if funding for that purpose is available.

CULTURAL RESOURCE ENHANCEMENT

- Enhancement of prehistoric and historic sites within the Preserve will be done in accordance with the Cultural Resource Site Management Plan proposed to include specific site inventory, enhancement, and protection guidelines and plans, as outlined in the <u>Historic</u> <u>Resources Restoration</u> section of the <u>Land Use Proposals</u> Chapter.
- 2. When lease renewal occurs for the equestrian center where the Mohnike Adobe is located, consider including restrictions for protection of the Adobe. These could include: no access, residential or otherwise, unless by an authorized caretaker; no alterations or modifications unless approved by appropriate County personnel; and installation of access barrier, such as pole and chain fence. Preserve management should install interpretive signs for public education.

HABITAT RESTORATION

 Native vegetation should be restored in damaged or degraded areas. Areas suffering from public activity abuse should be closed and rehabilitated. The following are damaged areas requiring restoration with native vegetation:

- Historical grazing areas throughout the Preserve, but primarily in the western portion of the Preserve;
- The riparian corridor in the central portion of Los Peñasquitos Canyon; and
- Miscellaneous unauthorized volunteer trails scattered throughout the Preserve.
- 2. Disturbed and upland areas should be planted with native trees where they are known to have existed historically.
- 3. When restoring a native habitat, plants used in the revegetation effort should be taken from donor sites in proximity to the site, if possible. Other donor sites are possible if no significant genetic variation is found upon analysis.

INTERPRETIVE AND RESEARCH GUIDELINES

The natural habitat preserve system in Los Peñasquitos Canyon Preserve provides significant interpretive and research opportunities. The following measures are designed to utilize these opportunities in a wise, non-disruptive manner.

INTERPRETIVE AND INFORMATIONAL DISPLAYS AND PROGRAMS

- The sign program in Los Peñasquitos Canyon Preserve will be in keeping with the rustic nature of the Preserve and consistent with standards set by the County and City Park and Recreation departments.
- Only the official logo, as shown on the cover of this Plan, will be used, as appropriate, on signs within the Preserve.
- 3. Signs will be used to identify designated Preserve entries and boundaries.
- 4. Signs/kiosks at Preserve entries and major access points will carry the Preserve logo and provide Preserve rules, regulations, and any other appropriate information.
- 5. Signs within the Preserve interior will be limited to: major trail identification; Preserve regulations; restoration project site identification; and resources, such as habitat and nature trail; identification and/or interpretation. One location should be at the Falls.
- 6. Signs will be strategically placed for maximum benefit and designed or placed to avoid increasing the number of perches already available in surrounding habitat for foraging raptors in sensitive species nesting areas.
- 7. Standard informational and educational signs/kiosks will be developed for the Preserve and for its riparian, coastal sage scrub, vernal pools, and chaparral habitats, sensitive species, and sites of historical/cultural significance.

- 8. Interpretive displays will be changed periodically and focus on educating the public about natural resources and systems within the Preserve, such as historical resources, evapotranspiration, habitat and plant identification, sensitive species, seasonal species, ecosystems, food chains, animal behaviors, and species adaption. Additional information on the Citizen Advisory Committee and the Friends of Los Peñasquitos Canyon Preserve, San Diego Archaeological Society, and the Los Peñasquitos Canyon Volunteer Patrol activities shall also be included.
- 9. Before sign placement, consultation with the Los Peñasquitos Canyon Preserve Citizen Advisory Committee and final approval from the City (Park Development and Open Space Division and Natural Resource Section), and County (if on County lands) is required. Posting notices on the bulletin board requires approval of the Park rangers.
- 10 Interpretive programs for historic resources, such as the Mohnike and El Cuervo adobes, should be developed and implemented including printed material (if desirable) and signs.
- An "Ecowatch" program (like Neighborhood Watch) which encourages public participation in educating, maintaining, and protecting should be considered for the Preserve.

NATURE TRAILS

- An overall nature trail system plan will be developed, including locations and points of interpretive interest, cooperatively with City and County Park and Recreation Departments, Citizen's Advisory Committee, and Friends of Los Peñasquitos Canyon.
- 2. A series of nature trail loops will be developed for different habitats throughout the Preserve.
- 3. All nature trails will have a self-guiding trail booklet available at the kiosks located at the main entry locations. A system of numbered posts corresponding to the interpretive information provided should be considered for each trail.

- 4. All nature trail signage will include sign posts with plant species listed and number corresponding to a description in a trail booklet or similar system.
- 5. Trail booklets will include information, such as:
 - International signs for trails (hiking, horse, bikes);
 - · Identification of key plant and tree species;
 - Physical description of species, growth habit, role in surrounding habitat, and uses by wildlife and man;
 - Description of common wildlife behavior, including feeding, foraging, sleeping, and mating behaviors;
 - · Identification of animal tracks, preserved along the trail in plastic or metal castings;
 - Overall discussion of how the habitats in the area function as an ecosystem, such as food webs;
 - · Historical and cultural facts of interest; and
 - Discussion of causes of resource degradation (public misuse, overuse, trash, etc.).
- 6. As appropriate, casting of animals, animal tracks, or animal droppings will be located with appropriate interpretive display along the nature trails as an interpretive resource.

INTERPRETIVE FACILITIES

The Preserve eventually would support two interpretive facilities: one run by the County focussing on cultural and historical resources currently located at Los Peñasquitos Canyon Ranch House; and the second run by the City focussing on natural history and biological resources with a proposed location somewhere in the eastern portion of the Preserve.

The County cultural resource interpretive facility at the Ranch House is currently open and operating. The facility currently houses the County Ranger, community meeting rooms and rooms housing cultural and historical artifacts and exhibits. Programs offered emphasize the historical workings of the Ranch House complex and various earlier inhabitants of the Preserve. The Los Peñasquitos Canyon Preserve Master Plan identifies an interpretive facility at the west end of the Preserve. Subsequent discussion during the development of the Los Peñasquitos Canyon Preserve Natural Resource Management Plan resulted in changing the recommended site location for a primary interpretive facility from the western end to the eastern end of the Preserve. A satellite interpretive structure of smaller scale, such as a kiosk-type shelter, could be considered for the eastern end of the Preserve for interpretive displays and programs. No specific site has been chosen but several are under discussion. The chosen site for the primary facility should have easy access to nature trails and the County's cultural interpretive center at the Ranch House Complex. The area nearest Black Mountain Road at one of the eastern staging areas is the preferred location due to its proximity to a main entrance and to the existing County Ranch House historical interpretive facility.

A choice of two possible configurations exist for a City interpretive facility. Depending on available space and funding, the City could build a small to moderate size building (1,000-2,000 square feet) or a large open covered structure. The building could house the City Park Ranger Office, a theater for slide and video shows, interpretive exhibits, classroom/lab/meeting room, and interpretive material storage. The open structure would be large enough to accommodate bench seating for a minimum of 40, interpretive displays, and Preserve bulletin board. In addition to electricity to provide lighting at the open structure, the City may want to consider including video or slide presentation equipment for evening interpretive events. Either structure option chosen would be designed to blend with the surrounding natural Preserve and use natural building materials. The area around the chosen structure should be landscaped with native vegetation and incorporate interpretive opportunities. This interpretive facility will be part of the City-wide network of centers already built or planned for all resource-based parks and preserves. Interpretive programs would interface with school curriculum and address community interest and involvement.

RESEARCH OPPORTUNITIES

Research within City resource-based parks and open space is encouraged by the City. City permission is required to ensure resources will not be damaged or research projects will not conflict with each other. Research proposals for studies to gather unknown information or update existing information on natural and cultural resources will be reviewed by Natural Resources Planner and Park

Ranger. Archaeological research proposals must be approved by City and/or County Park and Recreation Departments, as appropriate, and include Native American consultation before research activities begin. Depending on the nature of the request, the Citizen's Advisory Committee may be asked for its recommendations. City requests that any data published be shared with the City's Park and Recreation Natural Resource Section for inclusion in the Preserve's research library. Potential funding would come from outside resources, grants, or City funds. If City funds are used, the City would have final decision on which study to fund.

IMPLEMENTATION

FEDERAL AND STATE AGENCY PERMITS AND AGREEMENTS

The City of San Diego will be the lead agency for almost any project proposed on City land within Preserve boundaries. The County of San Diego will be lead agency for almost any project proposed on County lands within the Preserve. Federal and state agencies will be notified during the public review process of all proposed projects affecting natural resources and may require additional state or federal permits. These agencies could include CDFG, USFWS, RWQCB, and/or CORPS. Mitigation plans and mitigation monitoring reports for individual projects will also be submitted to these agencies for their review and comment.

In some instances, such as streambed alteration or erosion control, another agency may be the lead agency. This is the case when a specific permit must be obtained from CDFG for streambed alteration or erosion control. Any deposition of fill or other material into United States waters requires the CORPS to be lead agency when pursuing a permit. These lead agencies would then consult with other resource agencies for review and comment on the proposed project and mitigation plan, if there is one.

DEVELOPMENT RESPONSIBILITIES

This Natural Resource Management Plan covers four types of possible projects: 1) erosion and/or sedimentation control; 2) new Preserve structures; 3) Preserve and utility maintenance activities; and 4) habitat enhancement. It will be the responsibility of the City or project applicant to plan, obtain required permits, and develop and implement a Mitigation, Monitoring, and Reporting Plan.

<u>Project Planning</u>: For any erosion control, new structure, or maintenance activity involving impact to habitat, cultural resources, or streambed disturbance, a pre-project, site-specific field survey will be conducted by a qualified biologist and archaeologist. This survey will determine the type and extent of impact to natural and/or cultural resources and identify possible mitigation requirements.

If mitigation is required, a qualified biologist will develop a Mitigation, Monitoring, and Reporting Plan for approval by lead agency and acceptance by City Park and Recreation Department. Revegetation plans will include the following: a landscape plan which addresses in detail the compensation concept and design criteria; the types and extent of habitats to be developed; grading requirements (if any); plant materials to be used; method of planting; and plans for maintenance and monitoring of the revegetation. If cultural resources are also impacted, a qualified archaeologist will outline a plan and method(s) for protection and/or salvage of resource to be included in the Mitigation, Monitoring and Reporting Plan. The County will review and approve any mitigation plan for cultural resource impacts. The lead agency will review and approve revegetation plans before project approval is granted.

A binding mechanism will be instituted to ensure a project applicant will implement, maintain, and monitor the mitigation effort as planned and approved. This mechanism can be a bond or other means of assuring funds will be available to complete the mitigation program. In cases where mitigation habitat area is to be purchased from an already existing, approved mitigation bank, the acceptability of the project as a participant in the bank will need to be approved by the City or County and resource agencies and the required mitigation area purchased prior to project development.

<u>Mitigation Implementation</u>: Mitigation programs will be implemented according to Mitigation, Monitoring and Reporting Plans preceding or coincident with project construction or maintenance activity. This includes the purchase of mitigation area from a mitigation bank. Wherever necessary, exotic or invasive vegetation will be removed and an irrigation plan will be implemented to water plants until they have become established.

After project construction or maintenance activity is complete, a second habitat and/or archaeological survey of impacted areas will be conducted by a qualified biologist and/or archaeologist, as applicable, to ensure the successful implementation of the mitigation plan.

<u>Mitigation Maintenance</u>: Mitigation and enhancement plans will include a long-term monitoring program to determine the success of the plan and identify maintenance needs. In the first three to five years after plan implementation, monitoring will be conducted and reports made to the City and/or

County Park and Recreation departments and any other agencies as outlined in applicable permits on a regular basis. The frequency of monitoring will be determined during the Mitigation, Monitoring and Reporting Plan approval process. During the first three to five years, mitigation sites will be monitored to obtain information regarding species and quantity and quality of their growth. An annual report of this monitoring effort will be prepared and submitted to the City and/or County Park and Recreation departments. The report will address plant survival, vegetative cover, the success of establishing designated habitats, and recommended actions necessary to accomplish full mitigation. Resource agencies and any other agencies listed in permit requirement also will receive copies of mitigation monitoring reports.

The applicant will be responsible for maintaining revegetated mitigation sites until mitigation success criteria have been met. Replacement of vegetation and elimination of undesirable species will be undertaken as part of the mitigation maintenance program. Any vegetation that dies or is otherwise damaged within the first few years due to flooding, disease, over- or under-watering, vandalism, etc., will be replaced by the applicant. Vegetation should be monitored on a regular basis and replaced as needed to fulfill mitigation plan conditions. In order for mitigation areas to be successfully established, non-native plants which compete with native plants for light and space must be controlled. Non-native species, such as iceplant, eucalyptus, giant reed, tree tobacco, fennel, artichoke thistle, pampas grass, acacia, castor bean, and tamarisk must be removed from all mitigation sites. Any non-native plants should be removed biannually during the three to five-year maintenance period. Once removed, the plants should be disposed of in a landfill.

CITY RESPONSIBILITIES

The City Development Services and Park and Recreation departments are responsible for the administration of the Natural Resource Management Plan. The Development Services Department will review all public, private, and City development proposals for land under City jurisdiction to determine conformity with the Natural Resource Management Plan, City codes, and the California Environmental Quality Act (CEQA). The CEQA process will be applied to determine the environmental impacts of development proposals and identify mitigation measures and alternatives to reduce impacts to Los Penasquitos Canyon Preserve natural and cultural resources.

The Park and Recreation Department is responsible for conducting maintenance, resource management, enhancement, and educational activities in the Preserve in compliance with the Natural Resource Management Plan. The Park and Recreation Department will review public, private, and City project plans along with revegetation and Mitigation, Monitoring and Reporting Plans to ensure the projects meet the requirements and objectives of the Natural Resource Management Plan. The Citizen's Advisory Committee should review such projects and provide their comments and recommendations consistent with their role in the approval process. Enhancement projects, Preserve improvements, educational programs, and a current data base are also the responsibility of the Park and Recreation Department. Park rangers issue site use permits; coordinate volunteer efforts; provide educational programs; monitor and work to solve erosion problems; oversee trail, sign, and fence maintenance and development; provide enforcement of City ordinances; and regularly patrol the Preserve for problems. The Natural Resource section oversees the overall implementation of the Natural Resource Management Plan; reviews proposed projects and impacts to check for minimization of impacts and compliance with Natural Resource Management Plan; reviews Mitigation, Monitoring and Reporting Plans and is part of the compliance sign-off for meeting success criteria; issues research and data collection permits (in coordination with park ranger); manages sensitive species and their habitat; and oversees implementation of habitat enhancement and restoration projects.

General Services and Metropolitan Wastewater departments conduct maintenance activities for their infrastructure within the Preserve. These maintenance activities will be in compliance with the measures outlined in this Natural Resource Management Plan, as well as CEQA and other City regulations. If emergency work is needed, Park and Recreation staff (Park Ranger and/or Natural Resource Planner) must be notified in advance of repair work, if possible, or within 24 hours of an emergency repair action of what, why, when, and how these repair measures will be or were taken. Mitigation, Monitoring and Reporting Plans, if necessary, will require a minimum of Park and Recreation approval (Natural Resource Planner) and Development Services approval prior to implementation, as well as sign off to determine when mitigation criteria are met.

Funding for enhancement, management, and preserve maintenance for the Preserve natural resourcesystem can come from a variety of sources. Items outlined in this management plan are listed

below with possible funding sources:

- Informational, Directive, and Educational Signs/Kiosks. Potential Funding: Environmental License Plate Grant; Coastal Conservancy grant; State Parks grant; possible future state bond initiatives; operation budget; and/or community group fundraising.
- Interpretive Center Facilities. Includes nature trails, observation platform, structure, fence, and interpretive displays. Potential funding: Environmental License Plate Grant; Coastal Conservancy grant; State Parks grant; possible future state bond initiatives; operating budget; and/or community group fundraising.
- 3. Habitat Enhancement. Includes restoration of damaged areas, removal of nonnative species, addition of native trees and plants, and stabilization of erosion or potential erosion areas with native vegetation. Potential funding: Environmental License Plate grant; Coastal Conservancy grant; mitigation projects; operating budget; and/or community group fundraising.

COUNTY RESPONSIBILITIES

The County Planning Department is responsible for the administration of land use permits for Countyowned land in the Preserve and review of all public and County development proposals to determine conformity with County policies, Natural Resource Management Plan, and CEQA. The Citizen's Advisory Committee should review and provide comments and recommendations consistent with their role in the approval process. Identified environmental impacts will require alternatives or mitigation to reduce impacts.

The Park and Recreation Department is responsible for management and restoration of the Los Peñasquitos Ranch House complex, including a County Ranger housed at the Ranch House. The Senior Project Manager, Los Peñasquitos Canyon Preserve, is responsible for reviewing archaeological reports for accuracy of impact quantification and qualification and approval of cultural resource sections of Mitigation, Monitoring and Reporting Plan.
CITIZEN'S ADVISORY COMMITTEE RESPONSIBILITIES

In 1978, the Los Peñasquitos Canyon Preserve Task Force, was created with members from City of San Diego City Council and County Board of Supervisors to provide guidance on land acquisition policy and development of the Preserve. The Task Force then established the Los Peñasquitos Canyon Preserve Citizen's Advisory Committee to provide "public input into the planning process for the Preserve." In practice, the Committee makes recommendations on plans for land acquisition and Preserve facilities development and on potential environmental impacts to the Preserve from proposed Preserve projects and adjacent nearby development. Additionally, staff seeks advice on Preserve operation and management issues and policies as well as funding priorities for Preserve projects.

COMMUNITY GROUP RESPONSIBILITIES

The Friends of Los Peñasquitos Canyon Preserve, Inc. Is a non-profit, public interest group whose activities benefit the Preserve. "Friends" groups are part of the City-community interface. These groups make recommendations to the City on management needs, enhancement, and development of City parks and open space. In addition, the following are specific ways the community groups could support the City and County management of the Los Peñasquitos Canyon Preserve:

- 1. **Conduct fundraising activities** for Preserve enhancement and educational and/or interpretive efforts;
- 2. **Provide volunteers** needed for Preserve improvements, environmental education, and some maintenance activities, primarily for trash cleanup and trails;
- 3. Advise and assist any and all government agencies, as may be appropriate, in the preparation, adoption, implementation of, or amendment to the planning of Los Peñasquitos Canyon Preserve;
- 4. **Input public views and comment** on City, County, or other proposed projects or plans affecting the Preserve; and
- 5. **Investigate and advise on specific goals**, standards, and recommendations for open space use in Los Peñasquitos Canyon Preserve.

ACKNOWLEDGMENTS

AGENCIES/ORGANIZATIONS

Dr. Tom Demere, Curator, Paleontologic Resources, Natural History Museum
 Dr. Lynne Christenson, Archaeologist, San Diego State University and San Diego County
 Archaeological Society

FRIENDS OF LOS PEÑASQUITOS CANYON PRESERVE

Mike Kelly, President Brian Swanson, Treasurer (also Natural History Museum Canyoneers) Les Braund Barry Martin Cindy Burrascano (also California Native Plant Society, San Diego Chapter President)

COUNTY OF SAN DIEGO PARKS AND RECREATION DEPARTMENT

Susan Hector, Senior Project Manager, Los Peñasquitos Canyon Preserve Reneene Mowry, Ranger, Los Peñasquitos Canyon Preserve

CITY OF SAN DIEGO PARK AND RECREATION DEPARTMENT

Marcia McLatchy, Director Ted Medina, Deputy Director, Park Development and Open Space Division Nancy Acevedo, Former Deputy Director, Park Development and Open Space Division Robin Stribley, Natural Resource Manager Bill Lawrence, Senior Park Ranger Dion Heller, Park Ranger Don Steele, District Manager, Park Development and Open Space Division Karyn Abramo, Technical Assistance Trent Robertson, Graphic Assistance

REFERENCES

- Christenson, Dr. Lynne. 1994. Memo from Natural Resource Committee. "Cultural Resources of the Los Peñasquitos Preserve".
- ERC Environmental and Energy Services Co. 1991. Archaeological Investigations at a Five Hundred Year Old Settlement Twin Oaks Valley Ranch, San Marcos, California
- Fink, Gary R., and Joyce M. Corvin. 1983. The Cultural Resources of Los Peñasquitos Regional Park, San Diego, California. County of San Diego, Department of Public Works.
- Kennedy, Michael P. 1975. "Geology of Western San Diego Metropolitan Area, California: Del Mar, La Jolla, Point Loma 7.5' Quadrangles". California Division of Mines and Geology, Sacramento.
- Kennedy, Michael P. and Gary L. Petersen. 1975. "Geology of Eastern San Diego Metropolitan Area, California: La Mesa, Poway, and SW 1/4 Escondido 7.5' Quadrangles". California Division of Mines and Geology, Sacramento.

Loy, Maggie. 1987. Los Peñasquitos Canyon Preserve Biological Survey. County of San Diego.

San Diego, City of

- 1998 Draft Los Peñasquitos Canyon Preserve Master Plan
 1992 Los Peñasquitos Canyon Preserve Master Plan EIR
 1993 Rancho Peñasquitos Community Plan
 1975 Carmel Valley Community Plan
 1994 Sorrento Hills Community Plan
 1994 Draft Torrey Pines Community Plan
- 1981 Mira Mesa Community Plan

San Diego, County of

August 1980. Interim Management and Development Plan for Los Peñasquitos Canyon Preserve.

1994. Draft for Los Peñasquitos Ranch House Restoration and East Canyon Development.

Schaefer, Jerry and C. Michael Elling. 1987. An Assessment of Cultural Resources in Los Peñasquitos Canyon Preserve, San Diego, California. Consulting Archaeologists.

South Coastal Information Center. San Diego State University.

USDA. 1973. Sail Survey, San Diego Area, California. Parts I and II. United States Department of Agriculture.

Ward, Mary. 1991. County Historian Paper "Rancho Peñasquitos - A Brief History". County of San Diego.

APPENDIX A BIOLOGICAL SURVEYS

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by Maggie Loy (1987)

by Friends of Los Peñasquitos Canyon (1994 - 1996)

by Mitch Beauchamp

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BIOLOGICAL SURVEY REPORT LOS PENASQUITOS CANYON PRESERVE SAN DIEGO, CALIFORNIA

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Prepared by:

MAGGIE LOY, BIOLOGIST COUNTY OF SAN DIEGO

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ENVIRONMENTAL SERVICES UNIT

November, 1987

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BIOLOGICAL SURVEY REPORT FOR LOS PENASQUITOS CANYON PRESERVE

Summary of Findings

Los Penasquitos Canyon contains one of a few permanent water courses in coastal San Diego County. An unusually large number of floral associations and wildlife habitats are present. Furthermore, this canyon is relatively undisturbed by human activity. Its primary ecological function is a wildlife support system (gene pool) for much of the native wildlife seen throughout north-coastal San Diego. The canyon provides an extensive wildlife migration route from the foothills to the coast, with additional paths leading up the numerous finger canyons and along ridges and hogbacks. It is not uncommon to see deer and hear coyotes in a day's visit.

In north-coastal San Diego County, the boom of development has intensified the use of Los Penasquitos Canyon by wildlife. Thus, the consequences of habitat alteration are greater now than ever before. Major disturbance factors have been from cattle grazing and, recently, from off-road vehicle use. These activities have harmed the quality of the habitat but have not significantly displaced the wildlife or altered their migration patterns.

Within the canyon system, fifteen or more specific habitat types may be distinguished, each habitat having distinct faunal and floral components. Eighteen sensitive plant species have been confirmed present within the park. Also within the canyon, there is a population of oak that is not commonly found in the coastal area. Faunal resources include habitat for sixteen bird species of concern in San Diego County, including the potential for nesting habitat for least Bell's vireo, an endangered bird. Eleven of these birds were confirmed present during this survey. Of the herptiles observed, six are of special concern; one of which has been imported to the canyon; expected species include four others of special concern. Several mammalian species of local concern were detected, and one insect candidate for Federal listing is recorded from Los Penasquitos Canyon.

Introduction

The project is the establishment of a Master Plan for the Los Penasquitos Canyon Preserve, a 2500-acre publicly-owned property in the City of San Diego between the I-5 and I-15 freeways, twelve miles north -of the City's urban center. Los Penasquitos Canyon and its tributary, Lopes Canyon, their slopes and finger canyons are included. See Figure 1 for the project's location.

An intensive general biological survey of the park was conducted by the author in 1978-1979 and results of that survey are presented in this report as baseline information. Subsequently, all activity areas

FIGURE 1: PROJECT LOCATION LOS PENASQUITOS CANYON PRESERVE



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proposed were visited in 1986 to establish potential impacts of the master plan. The original 1979 boundaries have been expanded into an "influence area". See Figure 2 for a generalized presentation of these boundaries. In this expanded area, survey was restricted to those areas where activities are proposed. Mapping was done with the original boundaries shown; resources of the influence area and adjacent sensitive areas are also marked.

Project Description

According to the draft master plan prepared by Van Dell and Associates, Inc. (1986), the primary objective of the project is the preservation and enhancement of natural and cultural resources of Los Penasquitos Canyon and environs. Recreational and educational use by the public is the secondary objective.

Moderate levels of human activity will be concentrated around the two major access points at each end of Los Penasquitos Canyon. The remainder of the preserve will be reserved for passive day-use activities including a connecting trail system which expands upon the existing trail system.

The primary activity node will be at the east end of the canyon at the Johnson-Taylor Adobe (Penasquitos Ranch area). This complex is currently being developed and includes a nearby staging area, equestrian center, and active recreational uses featured at Canyonside Community Park.

The secondary access is proposed for the vicinity of the Ruiz-Alvarado Adobe at the west end of the preserve. Support facilities proposed include parking, restrooms, a picnic area, and a ranger residence.

Physical Characteristics

The proposed park site consists primarily of slopes and canyon bottom, and secondarily of on-site vistas, bluffs, and ridges. The highest part of the park is at its eastern end, being approximately 600 feet in elevation. The lowest elevation is approximately 30 feet, at the park's western boundary where the creek is channelized at Sorrento Valley.

Los Penasquitos Canyon, the major canyon within the park, contains one of the few permanent water courses in coastal San Diego County. An even more distinctive characteristic is that it is large continuous system relatively free from human disturbance stretching six and one half miles. This canyon varies from a deep wooded valley near the Johnson-Taylor Adobe to narrow gorges characteristic of three loci, to the open and more shallow valley where it meets Sorrento Valley. The secondary canyon, Lopez Canyon, is a narrow canyon with an ephemeral water source and is generally less disturbed by human use, though recent sewerline construction has greatly altered the bottom flora. Permanent ponds are found in the main canyon and in one of its northern tributaries. The major disturbance factor within the park site is cattle grazing, confined primarily to the floor of Los Penasquitos Canyon, its southerly exposed rolling hills, and Lopez Canyon's western reach where it joins Los Penasquitos Canyon. Other disturbance factors include off-road vehicle intrusion from nearby Mira Mesa and Rancho Penasquitos, Black Mountain Road which bisects the canyon, the three adobes-two of which are in use as horse stables, remains of a home and orchard in Lopez Canyon, an old dam and water treatment ponds, a powerline, sewerline, and dirt roads particularly one paralleling Los Penasquitos Creek and crossing it twice and one paralleling the powerline. Some refuse dumping has occurred where there is vehicle access.

The soils of the park site are characteristic of alluvium and slope wash along major drainages (especially Tujunga Sand and Salinas Clay loam), of metavolcanic origin in the eastern portions and at the canyon narrows (San Miguel-Erchequer Rocky Salt Loams), of sandstone and shale intermittently through the park (Corralitos Loamy Sand, Altamont Clay, Diablo-Olivenhain Complex and Huerhuero Loam), of conglomerate especially on steep slopes (Redding Gravely Loam, Olivenhain Cobbly Loam, and Terrace Escarpments).

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Methods and Survey Limitations

A field survey of the proposed site was conducted by Maggie Loy, biologist with the County's Environmental Services Unit. Assisting in the field were Dean Capralis, botanist; Eric Weir, naturalist; Eric Lichtwardt, herpitologist; Cathy Cibit, County biologist; and Phil Unitt, ornithologist. The baseline survey consisted of a total of 370 hours in the field.

The survey was divided into 50- to 100-acre study areas according to aspect (north facing slope canyon bottom, and south facing slope). studied systematically east to west. Each area was surveyed by bisecting it four to eight times so that all habitats were included. Sensitive habitats and diverse floral areas were emphasized. Color 2000' scale aerial photos (1978) aided in vegetation mapping. Approximately 80 percent of the proposed park was observed directly, with the exception of the influence areas that were added in the 1986 plan. Most plants were identified in the field. Those that were of questionable identity were taken to the Natural History Museum Herbarium for confirmation.

The faunal census included those vertebrates which could be directly observed and those which were presumed to be present by indirect evidence such as scats, tracks, vocalizations, nests, or burrow identification, and an evaluation of habitat availability and sensitivity. A separate avifaunal survey was conducted by Phil Unit, consisting of a general walkover of the site during eight early mornings in October, 1978. The herptofauna was sampled by the pit trapping technique, involving placement of three gallon open containers in the ground so that they are flush with the ground surface. Five traps were set in the coastal sage scrub on the north facing slope including one trap in a sandy drainage, and five on the coastal chaparral fringe on the canyon floor. Traps were set ten paces apart and covered by cardboard propped up by rocks, leaving a one inch space above the trap.

The autumn survey precluded detection many annual plants. A directed search for sensitive annual species was conducted in May, 1979, to compensate in part for that limitation. The cool dry autumn survey also is responsible for the absence of salamanders, some lizards, and for the scanty results obtained in using the herptile pit-fall traps. Butterfly species were not surveyed because of their seasonal habits; therefore, hypothetical information is substituted. Aquatic vertebrates were not surveyed. Small mammal trapping was not performed because trapping results for nearby areas and within the canyon is already available, and because the small mammals that occur on site are not considered rare or sensitive. Finally, in some cases the floral survey was hindered by extreme vegetation density.

In late spring, 1987, all proposed improvement areas and areas containing vulnerable biological resources were field checked by the author and Larry Sward, County biologist, for the preparation of this report.

Five private biology surveys were found to include portions of the project. Biological Survey Report of Penasquitos East, prepared for RECON by Pacific Southwest Biological Services, 1978, examined 2,860 acres; 378 acres are within the proposed park boundaries, in the northeastern portion. Lyon's Mira Mesa Draft Environmental Impact Report prepared by WESTEC Services, 1978, surveyed 425 acres; 33 acres are included in proposed park at the east end of Lopez Canyon. WESTEC Services surveyed Lopez Ridge Draft Environmental Impact Report in 1980, which included 20 acres of recently acquired parkland south of the Ruiz Alvarado Adobe. A biological report for the Lopez Canyon Detention Basin and Sewer Assessment District project, prepared by RECON, 1982, assessed the impacts of construction of a sewerline, lateral lines, and detention basin in the Lopez Canyon portion of the park. Finally, the Calle Cristobal/Camino Santa Fe Assessment District project which studied the construction of these roadways which cross the park in two places: at the western junction of Los Penasquitos Canyon and Lopez Canyon, and across Lopez Canyon in its midsection.

The nomenclature and identification source for the floral survey was P. A. Munz, (1974), <u>A Flora of Southern California</u>. "<u>The American</u> <u>Ornithologist Union Checklist of North American Birds</u>" (1957) and <u>supplements (1973, 1976, 1982); Stebbins (1966), <u>A Field Guide to</u> <u>Western Reptiles and Amphibians; and Jones, Carter, and Genoways (1975),</u> "Revised Checklist as North American Mammals North of Mexico" were used for faunal species nomenclature. Communities were identified according to Holland (1986) "Preliminary Descriptions of the Terrestrial Natural Communities of California"</u>

Botanical Setting

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A. Vegetation Communities

The diverse vegetation of the park site includes twelve plant communities described by Holland (1986), as follows. Figure 3 shows the location of the major community types.

Coastal Freshwater Marsh is found along Los Penasquitos Creek east of the waterfall at the junction of the creek with Lopez Canyon, and at a pond in the north central portion of the park. This vegetation type is dominated by dense growth of cattails (<u>Typha latifolia</u>) and tules (<u>Scirpus robustus</u>). Other characteristic plants include curly dock (<u>Rumex crispus</u>), and lizardtail (<u>Anemopsis californica</u>). Species diversity is low and vegetation is very dense, reaching three meters in height.

The marsh at the mouth of the Lopez Canyon is characterisitc of the coastal brackish marsh community. At one time this area could have been subject to the tidal influence of Los Penasquitos Lagoon, or, past agriculture or high saline groundwater may be responsible. This community is dominated by saltgrass (<u>Distichlis spicata</u>); <u>Juncus</u>, and <u>Cyperus</u>, are present in small numbers. The vegetation forms a low dense mat. Cattle are currently stressing this community.

Two variations of riparian woodland can be distinguished in the park. Southern willow scrub forms a dense thicket of the dominent arroyo willow (Salix lasiolepis) and occasional black willows (Salix goodingii) with an understory of poison oak (Toxicodendron radicans ssp. diversilobum), Douglas' mugwort (Artemisia douglasia), mulefat (Baccharis glutinosa), lizardtail, and amorpha (Amorpha fruticosa). Southern cottonwood-sycamore riparian forest is more varied and is found in slightly dryer areas. Western sycamore (Platanus racemosa), coast live oak (Quercus agrifolia), black cottonwood (Populus fremontii) and Mexican elderberry (Sambucus mexicanum) are common. Exotic species are also established near the Johnson-Taylor adobe including eucalyptus (Eucalyptus sp.) and palm (Phoenix canariensis). The understory varies from shrubs, such as flattop buckwheat (Eriogonium fasciculatum), chaparral broom (Baccharis sarathroides), iscoma (Haplopappus venetus) and San Diego marsh elder (Iva hayesiana), to a variety of subshrubs such as Palmer's mugwort (Artemisia palmeri), jimsonweed (Datura metaloides) and telegraphweed (Heterotheca grandiflora), and to common non-native grasses. Grazing has been a selective factor in these open riparian woodlands.

Sage scrub vegetation including several distinct subcommunities is common on dry southfacing slopes and in dry cobbly canyon bottoms.



EMENTS AND CLOSURES

FIGURE





FIGURE 2: 1979 PARK OWNERSHIP BOUNDARIES WITH SHADED 1986 INFLUENCE AREA

LOS PENASQUITOS CANYON PRESERVE





The Riversidian sagescrub association is typified by coastal sagebrush (Artemisia californica), black sage (Salvia melifera), and flattop buckwheat (Eriogonum fasciculatum). Coast barrel cactus (Ferocactus viridescens), adolphia (Adolphia californica), bladderpod (Isomeris arborea) encelia (Encelia californica), and yucca (Yucca schidigera) characterize other areas, forming a maritime coastal scrub. some areas contain a sparse growth of laural sumac (Malosma laurina) and toyon (Hetermeles arbutifolia), but denser growths of the these plants are associated with chaparral. Stands of prickly pear (Opuntia littoralis) and coast cholla (Opuntia parryii ssp. parryii) are occasional. In canyon bottoms the sparce scrub is dominated by herba del pasmo (Baccharis sarothroides) and flattop buckwheat. Two unique shrubs distinguish this subcommunity, Poway mint (Monardella linoides ssp. viminea) and San Diego mountain mahogany (Cercocarpus minutiflorus).

Non-native grasslands are common adjacent to riparian areas and on the grazed hillsides found in the western portion of the park. Small grassland areas also occur in open areas of scrub and chaparral areas. These grasslands are overgrown with non-native grasses (<u>Avena</u>, <u>Bromus</u>, <u>Lolium</u>) and forbs, along with occasional native shrubs. In less disturbed grasslands, San Diego thornmint (<u>Acanthomintha ilicifolia</u>), centaurea (<u>Centaurea militensis</u>), tarweed (<u>Holocarpa virgata</u>), and maraposa lily (<u>Calochortus</u> splendens) are present.

Southern coast live oak riparian forest is dominated by coast live oak (<u>Quercus agrifolia</u>). The understory is typified by either grazed grassland or subshrubs such as poison oak, Palmer's mugwort and wild gooseberry (<u>Ribes speciosum</u>). An isolated woodland at the base of lower Cuervo Canyon's southern slope is represented by Blue Mesa Oak (<u>Quercus engelmannii</u>). This oak is usually found in foothill areas. Dr. G. Levin of the Natural History Museum confirmed the identification. This is a disjunct population and it is of interest to the scientific community.

Southern mixed chaparral and Chamisal Chaparral are the most common chaparral types found in the park. In addition, pockets of Southern Maritime Chaparral are present on some north-facing slopes. Some lower slopes are strongly dominated by scrub oak (Quercus dumosa) forming scrub oak chaparral reaching six meters in height with very little understory. The southern mixed chaparral is characterized by mission manzanita (Xylococcus bicolor), summer holly (Comarostaphylos diversifolia ssp. diversifolia), redberry (Rhammus crocea), and barberry (Berberis pinnata). The pockets of maritime chaparral are characterized by Del Mar Manzanita (Arctostaphylos glandulosa ssp. crassifolia), and warty-stem ceanothus (Ceanothus verrucosus). The chamisal chaparral is found on and near mesas with a great dominence by Chamise (Adenostema fasciculatum), with occasional mission manzanita plants. Mesa clubmoss (Selaginella cinerascens) is a common ground cover.

B. Flora

During the survey 222 taxa were observed; 48 (22%) of these were non-native. Due to limitations of the season of survey, a number of annuals undoubtedly were not included.

San Diego County endemics of the park include <u>Pogogyne abramsii</u>, <u>Arctostaphylos glandulosa ssp. crassifolia</u>, <u>Corethrogyne</u> <u>filaginifolia var. linifolia</u>, and possibly <u>Mahonia sp.nov.</u>. Twelve relic taxa (paleoendemics); twelve northern limitaries, one southern limitary, and six desert-coastal disjuncts were observed in the park. The presence of these distinctive taxa indicate that Los Penasquitos Canyon is a relatively undisturbed coastal canyon, having been greatly influenced by geohistory of xeric climatic conditions. The flora of the project area and vicinity is characteristic of the coastal zone, though interior zone influence is also present.

A great diversity, exhibited in the variation in riparian growth including willow woodland, sycamore woodland, quiet stream aquatic and cobble wash, and in the shrub communities including differences due to variations in sunlight exposure, slope, and geomorphology, characterizes the canyon.

C. Rare and Endangered Plants

Acanthomintha ilicifolia, San Diego Thornmint, is an annual mint of grassland habitat that is being reviewed (Category 2) by the Department of the Interior for "endangered" status and which is considered endangered by the State. The California Native Plant Society (CNPS, 1984) lists this plant as extremely rare throughout its range and totally endangered (Red Code 3-3-2; List 1). This plant is found 260 feet east of the proposed waterfall lookout adjacent to an "unofficial" portion of the trail (see attached plant verification form).

Adolphia californica, California Adolphia, a thorny shrub of the coastal sage scrub, is listed by CNPS as rare in California and endangered in part, and not rare outside (south) of California (R-E-D Code 1-2-1; List 4). It occurs in large numbers on south facing slopes of ravines feeding the canyon from the north and south and in the vicinity of the lookout.

Arctostaphylos glandulosa var. crassifolia, Del Mar Manzanita is a low growing shrub found in small numbers on cobble slopes of the maritime mixed chaparral. The most recent CNPS list places this species as an uncertain taxon. Oberbauer per com, (1986), local CNPS representative, said that the taxon has been verified and it is now a List 1 species. <u>Artemisia palmeri</u>, San Diego Wormwood, occurs along smaller drainages and adjacent to Los Penasquitos Creek. CNPS lists this plant as rare, but not endangered and not rare outside (south) California (R-E-D Code 1-1-1; List 4).

Brodiaea orcuttii, of the onion family, is associated with vernal pools of the park. It is rare through its range and totally endangered (R-E-D Code 1-3-2; List 1).

<u>Ceanothus verrucosus</u>, warty-stem ceanothus is a shrub of the maritime mixed chaparral only several of these plants were found. CNPS lists this plant as rare, endangered in part, but not rare outside of California (R-E-D Code 1-2-1; List 2).

Comarostaphylos diversifolia var. diversifolia, a shrub of the heath family, is scattered on the north facing slopes and drainages overlooking the trail and is associated with thick chaparral. CNPS lists the plants as rare, endangered in part, and rare outside of California (R-E-D Code 1-2-2; List 1).

<u>Corethrogyne filaginifolia var linifolia</u>, Del Mar sand aster, is a low perennial which grows in open sandy areas. Although not found in the main canyon, a large population occurs in one of the large canyons feeding into the park from the north, and other scattered plants occur in smaller canyons in the north west portion of the park. This plant is considered very rare and endemic to California, but not endangered at this time (R-E-D Code 2-1-3; List 1).

Dichondra occidentalis, Western Dichondra, is a perennial ground cover that grows under shrubs. Several large populations are present, occuring on upper dry slopes in the bottom of one of the northern feeder canyons. This plant is rare, endangered in part, but not rare outside (south) of California according to CNPS (R-E-D Code 1-2-1; List 4).

Eryngium aristulatum var. parishii, San Diego button celery is a vernal pool species found only on mesa pools north of Los Penasquitos Canyon. This plant is very rare throughout its range and totally endangered according to CNPS (R-E-D Code 2-3-2; List 1). It is a state listed endangered plant, and under review by USFWS for federal listing.

Ferocactus viridescens, Coast Barrel Cactus, occurs occasionally throughout the length of the park. It often occurs in clusters, on dry slopes in areas with sparse coastal sage scrub vegetation. CNPS lists this plant as extremely rare, but not endangered, nor rare outside (south) of California (R-E-D Code 3-1-1; List 2). <u>Iva hayesiana</u>, San Diego marsh elder, is a fleshy, low growing shrub of the sunflower family. It is found in large numbers along slow-moving portions of Los Penasquitos Creek and lower portions of Lopez Canyon. This plant is very rare, partly endangered, but not rare outside (south) of California (R-E-D Code 2-2-1; List 2).

Monardella linoides ssp. viminea, Poway mint, a small shrub of the mint family, grows in dry cobbly drainage courses. It was found in 1979, and in 1982 in thirteen places along Lopez Canyon. In 1986, only one loci was spotted. Flooding and urban runoff are believed resposible for the decline, but this plant is adapted to such conditions and is expected to rebound, provided favorable habitat (hydraulic conditions, protection from ORV, pedestrian, and cattle disturbances) remains in light of the surrounding development. This plant may be propogated successfully. Repopulation of Lopez Canyon with this endangered plant is proposed as mitigation for indirect impacts of foot and cattle traffic. CNPS list this plant as extremely rare throughout its range and totally endangered (R-E-D Code 3-3-2, List 1). It is a State-listed endangered plant and under review by USFWS for federal listing.

<u>Pogogyne</u> <u>abramsii</u>, San Diego mesa-mint, is listed as endangered by both the state and federal governments. CNPS codes this plant with its most threatened rating (R-E-D Code 3-3-3; List 1). This is a vernal pool species found only on mesas north and adjacent to the City of San Diego.

Selaginella cinerascens, mesa clubmoss, is a very low ground cover found near the lookout on mesa tops, and on south facing slopes. CNPS lists this plant as rare, endangered in part, but not rare outside (south) of California. (R-E-D Code 1-2-1; List 2).

<u>Mahonia</u> sp. nov. (<u>Mahonia pinnata</u>?), Poway mahonia, is distinguished by Beauchamp (1986) as a new undescribed species, similar to <u>M</u>. <u>pinnata</u> but with narrower leaflets. It occurs in Penasquitos Canyon, Poway, Olivenhain, and Black Mountain. In the park it is found in metavolcanic outcrop areas of Penasquitos Canyon and in steep side canyons. Until the status of this plant is established it should be protected as possibly endangered.

A total of sixteen sensitive plant species were found present during the survey. Two additional were confirmed present by RECON for Development projects on Lopes Ridge: <u>Muilla</u> <u>clevelandii</u> (R-E-D Code 2-2-2) and <u>Ophioglossum lusitanicum</u> (R-E-D Code 1-2-2). Figure 4, a fold out map attachment (Attachment 1) shows the locations of sensitive plant species found during the survey.



LOS PENASQUITOS CANYON PRESERVE



FIGURE 3: MAJOR VEGETATION TYPES 1 Chaparral 2 Coastal Scrub 3 Non-native Grassland 4 Southern Oak Woodland 5 Riparian Forest 5 Vernal Pools 7 Sycamore Woodland 8 Freshwater Marsh/Open Water 9 Disturbed/Urban

Wildlife Setting

A. Overview

The wetlands of Penasquitos Park are its most valuable wildlife habitat. They are utilized by an extremely diverse fauna, many of which are sensitive species. Habitat suitable for one endangered bird species is present; seven other birds of concern, two amphibians, two reptile, and all expected mammal species of concern are dependent upon riparian habitats and wetlands present at Penasquitos. In general, faunal species limited to or primarily dependent upon riparian and wetland communities have been affected most severely by human developments. Penasquitos Park provides a refuge for such species.

The wetlands form a thread joining the eastern end with the western end, providing a corridor by which wildlife can migrate to utilize the areas which provide them adequate food and shelter (habitat). The adjacent areas of grassland and brushland provide large blocks of habitat with diverse secondary habitats (ravines, ponds, rock outcrops, sandstone bluffs, saturated soils), important to maintaining a diverse wildlife and providing the remoteness necessary to maintain some of the larger mammals and larger avian species, despite the urban nature of the surrounding area.

The two major drainages of the park provide two characteristically different habitats as well, one containing mature woodlands and dense riparian growth in a broad floodplain, the other being a narrow wash subject to more violent flooding resulting in a cobbly bottom dominated by scrub growth in the upper region, and in the lower reach stands of drought-tolerant sycamore trees.

The heavy cattle-grazing pressure occurring in the western end of the park is responsible for lack of riparian habitat there. Although the park's master plan allows for such grazing leases, grazing is the single most deleterious, on-going impact to wetland vegetation in the park. By eliminating this activity, an increase in the amount of this sensitive wildlife habitat within the park could be realized.

Much of the grassland and sage scrub of Southern California coastal basins have also been lost to and fragmented by urbanization and agriculture. These habitats are home to a number of species of concern; these species often have narrow habitat requirements such as the black-tailed gnatcatcher, cactus wren and Hermes copper butterfly which depend on thickets of particular plant species, or orange-throated whiptail, horned lizard, and legless lizard which depend on soil suitability, or marsh hawk which depends on remoteness for its vulnerable nest site, or burrowing owl which depends on a relationship with burrowing rodents to nest, or two-striped garter snake, pond turtle, and red-legged frog with their dependence on ponds. These habitats are also important for raptor hunting.

The park's grasslands are critical for three rare birds. The park's coastal sage scrub is home to three bird and three reptile species of concern. Brushland including three forms of chaparral are home to the remaining two bird, two reptile, and one mammal species of concern. Only in a few cases and in the case of the larger mammals do the species of concern rely on several of the habitats present.

B. Faunal Habitats

Grasslands characterize the western and north-eastern portions of the park. They also occur in a less disturbed state between brushy areas. At the riparian edge, they provide good edge habitat, a highly utilized area for forage.

Brushlands found on north-facing slopes are thick and largely impenetrable to humans and large predators, providing cover to small animals. On dryer south-facing slopes the brush is more varied and scattered providing a rich food source and openings for sunny exposure.

Woodlands follow the major drainages and canyons. Taller trees are used for raptor nesting. Downed trees play a particularly important role from food source (detritivores and detritivore feeders), to nest sites, to shelter. Stratified forests like the cottonwood/willow woodlands of the project area, with their increased trunk, branch, and foliage area support a highly diverse fauna, particularly a rich bird life. The vast insect and aquatic vertebrate resources are an attractive food source. Of course, water availability is basic to the survival of many large and medium sized mammals for drinking, of fish, and of amphibians for breeding.

Secondary habitats of the project area include ponds (five ponding areas along the main canyon and one large artificial pond in a canyon heading north from the main canyon were noted), vernal pools (in seven areas in or adjacent to the park study area), rocky bottomed drainages (including upper Lopes Canyon), hilltops and minor canyon systems (concentrated in the eastern portion of the park), marsh (found behind canyon constrictions like at the narrows in the central main canyon, fringing riparian woodlands, and at the western end where the two major canyons converge), rock outcrops (two metavolcanic outcrops in the central canyon), localized oak and sycamore woodlands, and sandstone outcrops (north of the main canyon).

C. Vertebrates

1. Reptiles and Amphibians

Four amphibian species and fourteen reptile species were observed in the park. An additional four amphibians and five reptiles are expected (not including the more secretive snake species) The census included a line of pit fall traps in two locations in the main canyon. Results of the trapping only confirmed the presence of western fence lizard and ornate shrew (mammalian species). See Table 1.

TABLE 1: Amphibians and Reptiles of Los Penasquitos Canyon Preserve

. . .

Common Name	Scientific Name
Garden Slender Salamander *Aroboreal Salamander Ensatina *Western Spadefoot Western Toad Arroyo Toad *Pacific Treefrog California Treefrog Red-Legged Frog *Bullfrog	Batrachoseps major Aneides lugubris lugubris Ensatina eschscholtzii Scaphiopus hammondi Bufo boreas halphilus Bufo microscaphus californicus Hyla regilla Hyla cadaverina Rana aurora Rana catesbeiana
Southwestern Pond Turtle *Desert Tortoise Silvery Legless Lizard *Western Fence Lizard *Side-blotched Lizard *San Diego Horned Lizard Red-tailed Skink *Western Skink *Orange-throated Whiptail *Western Whiptail San Diego Alligator Lizard Silvery Legless Lizard Western Blind Snake *Coastal Rosy Boa *California Striped Racer Red Racer *San Diego Gopher Snake *California Kingsnake *Two-striped Garter Snake *Red Diamond Rattlesnake *Western Rattlesnake	Clemmys marmorata pallida Gopherus agassizi Amiella pulchra pulcra Sceloporus occidentalis biseriatus Uta stansburiana herperus Phrynosoma coronatum blainvillei Eumeces gilberti rubricaudatus Eumeces gilberti rubricaudatus Eumeces skiltoniaus Cnemidophorus hyperythrus beldingi Cnemidophorus tigris Gerrhonotus multicarinatus webbi Anniella pulchra pulchra Leptotyphlops humilis Lichanura trivigata rosefusca Masticophis lateralis lateralis Masticophis flagellum piceus Pituophis melanoleucus annectans Lampropeltis getulus Thamnophis couchi hammondi Crotalus ruber ruber Crotalus viridis helleri

*Asterisks designates species detected. All others presumed present based on habitat.

2. Birds

A field census by Phil Unitt (October, 1978) recorded the presence of 69 bird species. A previous compilation of birds observed in the main canyon contains 100 species (compiled by Monte Kirvan from notes of various persons). The list prepared by Unitt is attached to this report. See Table 2.

TABLE 2: Birds Observed in Los Penasquitos Canyon Preserve*

Common Name

Scientific Name

Ardea herodias Ardeola striata Elanus leucurus Accipiter striatus Accipiter cooperii Buteo jamaicensis Buteo lineatus Circus cyaneus Falco sparverius Callipepla californica Chardadrius vociferus Capella californica Zenaida macroura Geococcyx californianus Tyto alba Aeronautes saxatalis Archilochus anna Ceryle alcyon Colaptes auratus Melanerpes formicivorus Sphyrapicus ruber Picoides nuttallii Tyrannus vociferans Sayornis nigricans Sayornis saya Hirundo rustica Aphelocoma coerulescens Corvus corax Corvus brachyrhynchos Parus inornatus Psaltriparus minimus Chamaea fasciata Troglodytes aedon Thryomanes bewickii Salpinctes obsoletus Mimus polyglottos Toxostoma redivivum

Table 2, continued

Western Bluebird Hermit Thrush Blue-gray Gnatcatcher Ruby-crowned Kinglet Water Pipit Loggerhead Shrike Hutton's Vireo Orange-crowned Warbler Yellow-rumped Warbler Black-throated Gray Warbler Townsend's Warbler Common Yellowthroat Wilson's Warbler Western Meadowlark Red-winged Blackbird House Finch American Goldfinch Lesser Goldfinch Rufous-sided Towhee Brown Towhee Savannah Sparrow Lark Sparrow Rufous-crowned Sparrow Dark-eyed Junco White-crowned Sparrow Golden-crowned Sparrow Fox Sparrow Lincoln's Sparrow Song Sparrow European Starling

Sailia mexicana Catharus guttatus Polioptila caerulea Regulus calendula Anthus spinoletta Lanius ludovicianus Vireo huttoni Vermivora celata Dendroica townsendi D. nigrescens Dendroica townsendi Geothlypis trichas Wilsonia pusilla Sturnella neglecta Euphagus cyanocephalus Carpodacus mexicanus Carduelis tristis Carduelis psaltria Pipilo erythropthalmus Pipilo fuscus Ammodramus sandwichesis Chondestes grammacus Aimophila rufieeps Junco hyemalis Zonotrichia leucophrys Zonotrichia atricapilla Zonotrichia iliaca Zonotrichia lincolnii Zonotrichia melodia Sturnus vulgaris



* Observed by Phil Unitt, 16 October through 1 November, 1978

A large number of raptors were observed in the project area. Tree nests were observed in both canyons. In addition a possible mating pair of northern harriers were noted over a three day period in late spring, 1986, over the grassland north of the waterfall. At the same time, another possible mating pair of black-shouldered kites were noted in the east end of the main canyon. The amount and type of habitat indicates that up to four pairs of black-shouldered kite, four pairs of red-tailed hawks, four pairs of red-shouldered hawk and five pairs of American kestrel nest in the study area; the habitat also suggests that several rare species breed within the park, in particular, up to three pairs each of Cooper's hawk and northern harrier could nest in the park. Screech, great horned, and barn owls undoubtedly nest in small numbers, and long-eared owl may breed in Los Penasquitos (Unitt, Attachment 3). A directed search for grasshopper sparrow, black-tailed gnatcatcher, and least Bell's vireo was done in late spring, 1986. Probable habitat areas were visited and checked for vocalizations by the author. Habitat for cactus wren was noted during the 1978 survey, but none of the birds were actually observed.

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3. Mammals

Mammalian resources of the project area appear to be typical for an expansive block of natural land. The perennial water source increases the habitat value for large and medium-sized mammals such as deer, coyote, bobcat, fox, ringtail, raccoon, and mountain lion. The main canyon has been a major migration corridor between the foothills and the coast, but due to the massive grading and development of the natural lands to the north and east, the canyon corridor use may become less available to migrants from outside the park.

In total fifteen species were detected during the survey and one additional, mountain lion, was sighted by a horseman in the interim. Live trapping small mammals was not done but one specimen was caught in a pitfall trap. Table 3 contains mammals that utilize the project area and those that are expected based upon habitat availability.

TABLE 3: Mammals of Los Penasquitos Canyon Preserve

Common Name

Scientific Name

*Opposum	Didelphis virginiana
*Ornate Shrew	Sorex ornatus
Desert Shrew	Notiosorex crawfordi
Broad-Footed Mole	Scapanus latimanus
*Brush Rabbit	Sylvilagus bachmani
*Desert Cottontail	Sylvilagus audobonnii
*Black-Tailed Jackrabbit	Lepus californicus
*California Ground Squirrel	Spermophilus beecheyi
*Botta's Pocket Mouse	Thomomys botte
San Diego Pocket Mouse	And the second se
	Perognathus fallax
California Pocket Mouse	Perognathus californicus
Kangaroo Rat (Agile)	Dipodomys aligis
Cactus Mouse	Peromyscus eremicus
California Mouse	Peromyscus californicus
*Deer Mouse	Peromyscus maniculatus
Harvest Mouse	Reithrodontomys megalotis
Desert Woodrat	Neotoma lepida
*Ducky-Footed Woodrat	Neotoma fuscipes
*California Vole	Microtus californicus
Southern Grasshopper Mouse	Onychomys torridus
*Coyote	Canis latrans
	With the second se
*Gray Fox	Urocyon cineroargenteus
Ringtail	Bassariscus astutus

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Table 3, continued

*Raccoon Long-Tailed Weasel Badger Western Spotted Skunk Striped Skunk *Mountain Lion *Bobcat *Mule Deer

Procyon lotor <u>Mustella frenata</u> <u>Taxidea taxus</u> <u>Spilogale gracilis</u> <u>Mephitis mephitis</u> <u>Felis concolor</u> <u>Felis rufus</u> <u>Odocoileus hemionus</u>

*Asterisk designates species which were dectected. All others presumed based on habitat. Bats are not included in this list.

4. Aquatic Vertebrates

Contact with Fish and Game biologist, Larry Botroff, is the source for the probable list of fish: *mosquito fish, *large mouth bass, *bluegill, *green sunfish, bullhead catfish, and channel catfish. Four of the above, marked with an asterisk were observed during the survey. All these fish are stocked or are naturalized at the water treatment plant in Poway. The mosquito fish is stocked for disease vector control.

Pacific pond turtle is probable in permanent ponds. This species is extremely sensitive to drought, so it is unique to such areas with quiet year round water.

Although Botroff does not believe red-legged frog is present in Los Penasquitos Canyon, one report from 1977 lists this species as "observed". This rare species is another which is very sensitive to drought and to competing species.

- D. Species of Concern
 - 1. Sensitive Bird Species

Habitat for the Federal- and State-listed Endangered least Bell's vireo is found in three locations in the main canyon. It is not known if the vireo actually breeds in the park, but it is probable. One casual search for this bird in June, 1986 was negative. The interior canyon was not included in the census for nesting activity for the Comprehensive Species Management Plan (CSMP), due to time shortage. The canyon is listed as having suitable habitat and it is expected that as the species recovers with preservation efforts, the suitable habitat in this area will be colonized (Fromer, personal com.), if it is not at this time. Currently, cattle grazing at the west end of the main canyon is preventing the natural establishment of Bell's vireo habitat. If suitable habitat were present there and shrubby growth were encouraged heading upstream to and between the existing willow thickets, the park would greatly contribute to the species recovery, as well as providing for other riparian obligate bird species.

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Table 4 contains Blue-listed and Special Animal-listed birds which are known from, or expected in the study area, excluding "accidental" sightings. The Blue List is an "early warning" document of birds that may have serious non-cyclical population declines. Data contributing to the Blue List comes from ornithologists nationwide. Therefore, some of the Blue-listed birds may actually have stable or increasing populations in San Diego County. The California Department of Fish and Game publishes a list of "Special Animals" which includes all the animals inventoried by the Natural Diversity Data Base.

TABLE 4: Sensitive Wildlife of Los Penasquitos Canyon Perserve

Species	Listing Source	Local Status
Birds observed:	÷	
Northern Harrier	Blue List	Declining
Sharp-shinned Hawk	Blue List, SCS	Stable
Cooper's Hawk	Blue List, SCS	Declining

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Red-shouldered Hawk	Blue List, SCS	Stable
Black-shouldered Kite	CP	Stable
Barn Owl	SC	Stable
Bewick's Wren	Blue List	Stable
Loggerhead Shrike	Blue List	Stable
Rufous-crowned Sparrow		Declining
Grasshopper Sparrow	Blue List	Declining
Black-tailed Gnatcatcher	Local Concern	Declining

Birds expected in the park on a seasonal basis:

Bell's Vireo	Federal/State End.	Declining
Yellow-breasted Chat		Declining
Yellow Warbler	SCS, SC	Declining

Birds strongly expected in the park in small numbers:

Cactus Wren (Coastal)	New subspecies	Endangered
Burrowing Owl	SCS, SC	Declining
Long-eared Owl	SC	Declining

Table 4, continued

Herptifauna observed:

Two-striped Garter Snake Oranged-throated Whiptail Rosy Boa San Diego Horned Lizard Desert Tortoise Red Diamond Rattlesnake	SCS SCS FWS	Declining Declining Unknown Declining Imported Unknown
Herptifauna expected:		
Southwestern Pond Turtle Silvery Legless Lizard Red-legged Frog Arroyo Toad	 SCS	Declining Unknown Declining Declining
Mammals observed:		
Mountain Lion Bobcat		Sensitive to Development Sensitive to
Mammals expected:		Development
Ringtail Badger Bats (all species)	SCS varied	Declining Declining Declining
Insects expected:		á m
Hermes Copper	FWS	Declining

Blue List:An early warning system for birds (Tate, 1986)SCS:CA Dept. of Fish and Game Species of Special ConcernSC:Special Concern by Remsen, 1986; or Tate, 1986FWS:Candiate for listing under Federal LawsCP:California Fully Protected

2. Sensitive Amphibian and Reptile Species

Six sensitive reptiles were observed in the study area: The two-striped garter snake listed as "rare" by the International Union for the Conservation of Nature and Natural Resources (IUCN, 1976); the San Diego horned lizard listed as "status

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undetermined" by IUCN, and as a California Species of Special Concern by Department of Fish and Game; the orange-throated whiptail listed by IUCN as "depleted", and as a California Species of Special Concern; the rosy boa and red diamond rattlesnake which are of local concern; and the desert tortoise which is a Candidate for Federal listing and which was imported to the canyon with little likelihood for naturalization. The pond turtle and legless lizard are local species of concern that are expected in the park.

Two sensitive amphibians are expected in the park: The arroyo toad, a California Species of Special Concern is expected downstream of the waterfall in the drier wash area along the creek; and the red-legged frog, a species of local concern, which requires permanent quiet ponds. Refer to Table 4.

3. Sensitive Mammal Species

None of the mammals present or expected are considered rare or endangered. One expected mammal, the ringtail, is fully protected by California Fish and Game and is also a California protected furbearer. It inhabits chaparral and other low thick vegetation, and dens in rocky areas. Badger is a California Species of Special Concern and it is may occur in the open wooded areas of the park.

Mountain lion which was observed in 1982 may be considered sensitive because of its need for remote areas and the required size of its territory. Another observed mammal, bobcat, is also sensitive to development for similar reasons. Locally, both the mountain lion and bobcat populations are believed to be healthy, but their presence is a sign of the biotic viability of the area.

All bats which may be found in the project area must be considered rare and requiring protection because of the rapid loss of their habitat in the coastal region.

4. Sensitive Invertebrate Species

Invertebrates were not included in the survey. However, one sensitive butterfly is historically known from Los Penasquitos Canyon. Hermes copper is restricted to stands of redberry, a plant which is subject to elimination by fire. This plant is found in ravines in the western portion of the project area.

D. Sensitive Habitats and Habitat Evaluation

Vernal pools are one of San Diego County's most unique resources. Distinctive flora and fauna have evolved in these islands of habitat. Recently, development of mesa areas have seriously depleted the amount of habitat, enough to warrant the listing of one of its species, San Diego mesa mint, was encountered in pools in and about the park. San Diego button celery and Orcutt's brodiaea are also characteristics of these pools. The park's pools are found on Lopez Ridge and north of the main canyon. CALTRANS has purchased and holds several very large pools adjoining the park's hiking corridor to the north.

Wetlands including riparian woodlands, adjacent oak woodlands, freshwater marsh, and open water are also considered sensitive habitats, and they are considered declining because of habitat losses to development and agriculture. At Los Penasquitos Park, they occur primarily along the major drainages, and as an artificial pond. Wetlands provide essential habitat to aquatic vertebrates and to those dependent upon drinking water.

Riparian woodland is perhaps the most valuable wildlife habitat in coastal Southern California, primarily because it supports a diverse avifauna, and because of the large number of sensitive species associated with it. Riparian woodlands provide a highly productive biomass for use in the food chain. They are structurally diverse enabling use by a great number of species. They are important to breeding birds (obligate riparian breeders), to migrating birds for resting and feeding prior to extended night flights, and to wintering birds who intensively utilize this habitats resources. Alteration, primarily resulting in the addition of fill to the watercourse, to any intermittant creeks requires a permit from the California Department of Fish and Game; Alteration of more than one acre of any wetland requires a permit under the U.S. Army Corps jurisdiction. The proposed park activities are not expected to alter streambeds or wetland vegetation.

The following is a list of additional sensitive habitats confirmed present within the park. Figure 5 shows the locations of identified sensitive habitats.

1) Grassland habitat suitable for grasshopper sparrow and marsh hawk.

2) Dense willow woodland suitable for willow flycatcher, Bell's ---vireo, yellow warbler, and yellow-breasted chat breeding areas.

3) Coastal sage scrub habitat for black-tailed gnatcatcher and rufous-crowned sparrow and/or orange-throated whiptail and San Diego horned lizard.

4) Coast cholla thicket suitable for cactus wren habitation.

5) Sandstone bluff habitat suitable for several species of sensitive reptiles, raptor nesting and hunting, and sensitive plants.

6) Ponds and marshes suitable for two-striped garter snake, amphibian breeding areas, fresh water fish, wildlife watering stations and several sensitive plant species.

7) Lopez Canyon, containing an abundance of wildlife, a major migration route, and habitat for endangered plants.

8) Good quality oak woodland, including, in Lopez Canyon, a stand of blue mesa oak, which is highly unusual in coastal areas.

9) Metavolcanic rock outcrops, apparent habitat for one possible new plant species of Mahonia, and for a variety of small creatures.

10) Hillsides with clay soils, suitable for sensitive annual plant species.

11) Maritime mized chaparral, habitat for an abundance of rare plants.

The quality of natural habitats in the Los Penasquitos Canyon Preserve is of course outstanding for providing a large natural ecosystem in the heavily developed coastal region of San Diego County south of Camp Pendelton. An unusually large number of habitats are included in the park, and many sensitive plant and animal species potentially can be preserved there.

However, during the nine years interim of data recovery and confirmation of resources for data presentation, observational and indirect evidence suggests that fewer deer and coyote use the area than during the 1978 survey. Some wildlife corridors that were in use in 1978 have now been cut off by development.

Some physical changes have occurred: Lopez Canyon has been altered by construction and urban generated flooding; Park development is evident including the Canyonside Park, the eastern staging area, increased foot and equestrian access and use, and the Johnson-Taylor Adobe parking and road improvements. Initial Studies from 1982 and 1984 address some of the park improvements, another from 1982 addresses the -Lopez Canyon sever project.

Because of the parks linear configuration and the intensity of development proposed to be adjacent to the park, it will not be easy to maintain the park's sensitive wildlife resources. This is because wildlife will be less able to migrate and mingle with populations naturally occurring outside the park. When surrounded by development, the preserve will be similar to a long narrow island of natural habitat.

Impacts of Master Plan Implementation with Proposed Mitigation Noted

At this time it appears that future improvements will consist of some of the hiking and equestrian trails (most of the system is in place or utilizes existing trails), improvements near the Ruiz-Alvarado Adobe, including parking picnicking, hang gliding and camping, and local parks to be developed in association with adjacent housing developments. The proposed equestrian center, east of Black Mountain Road, will involve improvements to the existing equestrian use area.

As part of the establishment of a official improved park, visitor use will increase. It is estimated that a total of 1,241 users will use the park at one time. Wildlife, especially shy and restricted species, will be affected. The park's sensitive flora also has a higher risk of indirect impact from trail wanderers. Protecting the park's sensitive resources will require a major effort on the behalf of the County and City Parks Departments.

In order to discuss the impacts of the proposed improvements, the park has been arbitrarily divided into sections as presented in Figure 6. Figure 6 also shows the generalized locations of the proposed activivies and trails. In the text, as impacts are discussed, the proposed mitigation is designated by bold lettering. Figure 7 shows the locations of proposed mitigation, and the general types of mitigation that are proposed.

A. Ongoing Impacts

Control of existing ongoing impacts is very important to the biological health of the canyon. These impacts fall into the following categories: off-road vehicle activity, shooting, trash dumping, cattle grazing, and increased run-off and sediment transport from surrounding developments.

These ongoing impacts are non-specific and could result in damage to or destruction of any of the sensitive biological resources present in the park. By virtue of the nature of these impacts they are particularly difficult to address, especially in a master plan. For the human-related ongoing impacts, methods to control their effects are discussed in the Long Range Objectives Section of the Master Plan. These include the use of park rangers and monitoring to assess impacts of "human activity". No specifics are offered as to the responsibilities involved for mitigation of these impacts. Methods and a schedual for monitoring should be



MASTER PLAN ACTIVITIES

A CONTRACTOR

A Ruiz Alvarado Adobe
 B Camping and Hang Gliding
 Waterfail Activity Area
 D Penasquitos Ranch
 E Canyonside Park
 F Equestrian Center
 G Staging Area
 View Points
 Main Trails
 Other Trails

developed, and a written report prepared on no less than an annual basis. This monitoring should be done by a knowledgeable biologist. A fund from user generated income should guarantee money for mitigation should it be necessary.

For the nonhuman-related ongoing impacts like runoff and sedimentation from adjacent land alteration, the difficulty is the establishment of the impact before substantial damage is done. In Lopez Canyon the increased runoff was probably responsible for the drastic decline in the population of a State-endangered plant, <u>Monardella linoides viminea</u>. A catch basin has now been installed to regulate flows in Lopez Canyon, but an active propagation program is proposed to insure that this plant resource remains in the preserve. A memorandum of agreement with California Fish and Game is required for such a program.

In an other case, one of the park's largest coast live oaks died suddenly, possibly due to the drainage alterations from the adjacent overlooking development. A study to determine what caused this oak to die and to determine if ongoing impacts are affecting the canyon's oak woodland should be done presently by a qualified oak tree specialist. Such a study should evaluate the health of the canyon's oaks, especially those adjacent to the one that died. If identified impacts involve negligence, the responsible parties should be made to mitigate, preferably by[22m fixing the cause of impact and/or planting to reestablish the habitat.

Cattle grazing, a serious ongoing impact, is extremely destructive in the setting of the Canyon Preserve. In wetland areas, like along Los Penasquitos and Lopez Creeks, and especially at their confluence, cattle disrupt the fragile mesic soils, causing variations in compaction and precluding most native vegetation establishment. Disrupted soils are subject to a higher rate of erosion and maybe accelerating sedimentation downstream in the Los Penasquitos Estuary, designated critical habitat for a number of Endangered Species. In addition, cattle excrement is polluting the creek water, which is this park's major attraction for resident wildlife.

Typically, cattle can graze-off native grasses, and trample native shrubs. In the preserve, cattle are preventing this area's natural succession to willow woodland in the low lands and to coastal sage scrub on the hillsides. Willow woodland and coastal sage scrub are two of the most important habitats known in the coastal region, as they support an abundant and diverse fauna. The cattle have left behind ruderal grassland, which supports very few native plant and animal species. Though deer and cattle do not compete directly for food resources, cattle limit the establishment of deer browse and therefore fewer deer can utilize the canyon preserve.

The current cattle lease does not limit the number of cattle allowed. The lease area includes 1,856 acres, though fence placement indicates a smaller use area. Because cattle congregate in the low areas, the wetland area is especially impacted. The lease is also responsible for a fence which bisects Lopez Canyon. This fence may be a barrier discouraging large mammal migration.

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Cattle grazing should be disallowed in the park as a significant impact on the biology of the park and as an activity contrary the the philosphy of a preserve.

B. Impacts of Trail Use and Development

Use and development of trails are also covered in the Master Plan, but in a non-specific way. In the Summary of Recommendations it is stated that "the existing trail system should be refurbished, expanded and/or relocated using environmentally sensitive design criteria". Furthermore, the Master Plan does not show the entire existing trail system making it difficult to asses all the impacts of the future park as it will be used. Hiking trail maintenance is proposed based upon ranger inspections. Equestrian trail maintenance is to consist of being "cleaned frequently". Designation of horse rest and grazing areas are not included in the plan, but the identification and fencing of such areas are especially important because of the potential damage that localized grazing can do to the sensitive flora of the interior canyon. Rest areas that will receive equestrian use should be identified and assessed for biological impacts. Corral or tether areas should be provided, so that impacts of grazing are controlled.

The impacts described below are based upon a walk over of the system as presented in the plan. It was assumed that where an existing trail was in the vicinity of the proposed trail that the existing trail was to be used. These cases are noted. In general, main trails would be improved to ten to twelve feet width, equestrian trails to six to eight feet, and hiking trails to three to four feet. The master plan also recommends that the trails be segregated intermittantly, and that wider trails should be provided on the less steep or more popular routes.

1. Eastern Reach

One equestrian trail, approximately one mile long will be improved. The trail appears to follow an existing equestrian trail. Resources along the trail which may be impacted if trail
improvements include widening or realignment consist of plants with low sensitivity: San Diego marsh elder is well distributed along the entire drainage with lesser numbers of San Diego mugwort, lower northern hillsides at the trails midway have adolphia and barrel cactus. The drainage also has a narrow riparian woodland, but impacts from trail use are not expected unless there are trail realignments or widening.

2. Northern Access

Trails go up four feeder canyons to join on the northern mesa. The trails are in place in the feeder canyons, but the mesa trail is discontinous in three places where the trail dips into canyons to maintain its proposed alignment. A total of 3.86 miles of trail are planned, of which about 0.5 miles do not exist.

The mesa trail crosses the CALTRANS vernal pool preserve, presenting a significant impact to the pools and to three endangered plant species. The only possible mitigation is a trail reroute, but the park preserve has only a narrow corridor in this area. Additional land may have to be sought. Indirect impacts to the pools will also have to be assessed carefully because the CALTRANS property was purchased as mitigation for pool preservation under an agreement with U.S. Fish and Wildlife Service.

In the eastern three feeder canyons, sensitive resources are scarce and consist of scattered adolphia and summer holly, a stand of San Diego marsh elder and one location of Del Mar manzinita. The dominant vegetation is mixed chaparral with patched of scrub oak woodland and coastal sage scrub in the eastern most canyon. Significant impacts from trail use are not expected in these three canyons. In the other feeder canyon, resources are characteristic of coastal mixed chaparral with a large number of Del Mar manzanita and summer holly. Because of the sensitivity of the manzanita and its distinctive community type, any trail widening or improvement in this area should be done with the consultation of a knowledgeable biologist.

3. Rancho Area

In the Rancho area there are 6.4 miles of trail, about two miles of which are not in place. The trail in the main canyon is currently the most used and is passable by vehicle. The use of this major trail was discussed in an Initial Study from 1982, no impacts were expected along this portion of the trail. The resources noted along this trail are the sensitive community types, oak and riparian woodlands, and occasional San Diego mugwort and marsh elder. The trails in the southern three canyons are not in place. The two eastern canyons are characterized by thick mixed chaparral and summer holly is fairly common. Because of its common distribution, impacts in these canyons are probably not significant. In the large western feeder canyon, its exposure to the west has resulted in coastal sage scrub vegetation with large stands of adolphia and barrel cactus. A black-tailed gnatcatcher was also detected in this canyon. Trail construction in this canyon should be routed with consultation from a knowledgeable biologist.

4. Central Area

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The central area is probably the most sensitive biological area of the park. The trails proposed in this section include 2.9 miles of trail; the two southern trails will have to be constructed. and two existing highly used trails north of Penasquitos Creek and east of the waterfall area appear to have been dropped from the system.

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The trail to the feeder canyon to the north is largely in place with the exception of the upper canyon. This feeder canyon is broader and more diverse; it supports an artificial but permanent pond, and in the upper one half it has a cobble and scrub bottom with Del Mar sand aster, Western dichondra, and adolphia. Trail improvements in this area should be constructed with the oversight of a knowledgeable biologist. Hillsides in this area support large populations of summer holly, and (less dense than the next west canyon) populations Del Mar manzanita. The major impact appears to be upon a large population of San Diego thornmint found on the lower slope approach to the feeder canyon. The existing trail crosses the population which lies in a grassy field, because of its proximity to the waterfall, it is a likely place for horses to graze and tread. Fencing along the trail is necessary to avoid impacts to the thornmint.

Because of its value to wildlife including possible nesting for marsh hawk in the adjacent grasslands, possible nesting for the endangered least Bell's vireo in the adjacent willows, and the presence of a potentially endangered mahonia, development in the vicinity of the waterfall area is potentially significant. More details about the proposed interpretive center are necessary to establish if mitigation in this area is appropriate.

One of the southern trails generally follows the existing powerline service road. No impacts from use of this trail are expected. The middle southern trail follows a short, steep, feeder canyon with very thich chaparral. Though few sensitive resources were observed, the trail seems to cross an unusual and highly erodible soil type which supports a small population of Del 'Mar manzanita. A realignment away from this area is proposed as mitigation.

5. Western Canyon Area

The western canyon area has a total of 4.8 miles of trail proposed, with about 2.5 miles of trail which would need to be constructed. The major access trail in the main canyon is fully improved and does not require any mitigation, but because of the presence of a potentially endangered mahonia in the vicinity, the vista proposed at the narrows will require additional review as details of the construction are available.

The trail north of the creek is only partially in place at the western end. The creek crossing at the narrows would also need to be constructed, with the details requiring further environmental review. Of the three northern feeder trails, none are existing. Only remnants of trails in two places are present, adjacent to the proposed trails. The eastern two feeder canyons do not appear to contain sensitive resources. The western most contains an outcropping of sandstone which contains Del Mar sand aster and warty-stemmed ceanothus. Because of the erodible nature of sandstone and the presence of sensitive resources, this trail should be abandoned.

6. Lopez Canyon Area

In Lopez Canyon there are 5.0 miles of trail proposed. The main trail which was to be constructed as part of the sewer project is not passable beyond about half way up the canyon. In the upper reach it appears that the road has been washed out. Replacement of the road in this area will involve consideration of a State-endangered plant, willowy monardella. Biological consultation for establishing a permanent trail is definitely necessary. The bottom of Lopez Canyon also has a broadly distributed population of San Diego mugwort, and several marsh elder and summer holly populations. The slopes support adolphia, summer holly and barrel cactus in the eastern half, and an unusual poplulation of mesa blue oak is present.

Two trails lead off the main trail to the north, both to link up with trails from the Penasquitos Canyon. The eastern most link-up appears to use the existing powerline access road. No vernal pools are mapped or were observed in this area. The western ridge crossing does not appear to have significant impacts, though a small population of a low level rare plant, mesa clubmoss, may be impacted. Of the four trails leading into southerly feeder canyons, only the western one appears to be in place. The next trail to the eastern is near to a trail leading to the mesa top, but this area is not within the project boundaries. If this trail leads up the drainage bottom, impacts to a potentially endangered mahonia may occur. A biologist's consultation in finding an alternate alignment will therefore be required. The next two southerly trails begin together then diverge, one to the alignment of Camino Santa Fe and the other into a substancial feeder canyon which contains a small number of oaks. No sensitive flora along these proposed trails were detected.

The last trail in this area is proposed to extend up Loped Canyon east of Montongo Street. This area is now the location of a detention basin designed to control flooding to a 25-year flood discharge. No sensitive flora was observed in this area, though some wetland vegetation is present.

7. Freeway Access Area

No trails or improvements are proposed for this area of the park.

C. Impacts of the Improvements to Ruiz Alvarado Adobe Area

The adobe in the western canyon area will be the site of improvements as the western hub of park activity. The proposal includes an interpretive center, a parking and staging area along the extension of Sorrento Valley Boulevard, and camping and hang gliding activities. Proposed structures in this area could have an impact to wetlands or their future establishment in the vicinity of the cienega formed from the junction of the Lopez and Penasquitos Creeks. Therefore, it is recommended that all potential wetland areas be avoided and no fill be allowed to raise structures out of floodplain areas. Impacts to successional freshwater wetlands are significant especially in the coastal region because of their value to several endangered birds.

This entire development complex should have a more detailed biological reveiw during and after the design phase of the project. The walk-in campground, which is proposed to be in the vicinity of the sycamore grove, and the hang gliding activities planned for the west-facing slope of Lopez Ridge, could also have indirect impacts from visitor use on the wetland, and therefore the floodplain area should be reviewed and monitored for such impacts. Indirect and direct impacts to the grasshopper sparrows in this area should also be monitored. Though they are expected to relocate to the adjacent available habitat, if a decline is noted, habitat enhancement should be attempted. D. Impacts from the Equestrian Center

The proposed equestrian center will be in the location of the existing equestrian use in the Eastern Reach area. Impacts to biological resources have not been noted in this area, though a historic location of San Diego ambrosia, an endangered plant, is in the vicinity. Search efforts for the plant were negative. Additional improvements include the construction of a picnic area and of a snack bar. If the sensitive riparian habitat along Penasquitos Creek is avoided, these improvements probably will not have biological impacts.

E. Impacts from the Proposed Local Parks

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Canyonside Park, a separate development project within the preserve, will be expanded as shown on the Master Plan, to include tennis courts. This area is habitat for grasshopper sparrow, but the major impact to the habitat was done when the ballfields were constructed. Remaining birds will move to the adjacent contiguous grassland habitat. The number of pairs in this area will be reduced. Cumulative impacts to the bird in the canyon include potential impacts from Canyonside Park, from the Sorrento Valley Road project, from the Waterfall Activity Area, and from the Ruiz Alvarado Adobe Activity Area. Of the singing individuals noted during the survey, 28 percent (5 of 18 noted) would be affected by park development. Even though Canyonside Park is a separate development, the grasshopper sparrow population found in this area should be monitored and considered in detecting cumulative impacts of park (preserve) use on the species. If a decline is demonstrated, appropriate habitat enhancement should be attempted.

The proposed local park where Camino Ruiz bisects the canyon is also habitat for the grasshopper sparrow. Adolphia and marsh elder are in the vicinity. Further environmental review would be required before construction.

The local park planned for Lopez Ridge is currently mapped in a vernal pool area, which poses significant biological impacts. An alternative location will probably be required. The locations of the local parks planned for south of eastern Lopez Canyon and for northeast of the equestrian center were not included in the survey area, but no significant resources are known to be in these areas.

-F. Impacts from Penasquitos Ranch Development

This area will primarily focus on an area already altered by development. The addition of orchards, hayfields, and pastures, is not expected to impact sensitive biology. The proposed duck pond could more appropriately be a wildlife watering and use area by letting local wildlife use the resource and by keeping non-native waterfowl out of the park.

The historic gravesite is also the site of a very large, very dead coast live oak, recently downed. This downed wood is valuable wildlife habitat and should not be removed from the park. If some of it must be cleaned away from the gravesite, large branches should remain in the vicinity. Monitoring the other nearby oaks may indicate if this tree suffered from disease and/or from the increase of runoff from the adjacent developement, and if drainage corrections needs to be made.

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References

American Ornithologists Union, Committee on classification and Nomenclature, 1982. Thirty-fourth Suplement to the A.O.U. Check-list of North American Birds. The Auk. 99(3).

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

California Department of Fish and Game, 1980. Endangered, Rare and Threatened Animals of California. The Resources Agency.

California Department of Fish and Game, 1986. Special Animals. The Resources Agency.

Darnell, D. M., 1983. Southern California Oak Woodlands: a General Report of a Sensitive Ecosystem. CALTRANS District 11.

Everett, W. T., 1979. Threatened, Declining and Sensitive Bird Species in San Diego County. S.D. County Audubon Society. Sketches. June.

Holland, R. F., 1986. Preliminary Descriptions of the Terrestrial Natural Communities of California, California Department of Fish and Game.

Jones, J. K., D. C. Carter, and H. H. Genoways, 1975. Revised Checklist of North American Mammals North of Mexicc. Texas Tech. Univ. Mus. occas. Papers, No. 28.

Munz, P. A., 1974. A Flora of Southern California. Univ. of Ca. Press.

Patterson, C., 1987. Personal Communication regarding the Lopez Canyon Sewer Project and its impact on Willowy Monardella. September 14.

Remsen, J. V. Jr., 1978. Bird Species of Special Concern in California. Ca. Dept. of Fish and Game.

Rieger, J. P., 1987. Personal Communication regarding the CALTRANS Vernal Pool Preserve. October 22.

Stebbins, R., 1966. A Field Guide to Western Reptiles and Amphibians. Houghton Mifflin Company.

Tate, J., jr., and D. J. Tate, 1986. The Blue List for 1986. American Birds. 40(2).

Unitt, P., 1984 The Birds of San Diego County. San Diego Society of Natural History.

U.S. Department of Agriculutre, 1973. Soil Survey of San Diego County, California.

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Williams, D. F., 1986. Mammalian Species of Special Concern in California. Ca. Dept. of Fish and Game.

ATTACHMENT 2 Plant Checklist

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PLANT CHECKLIST

LOS PENASQUITOS REGIONAL PARK

Selaginellaceae--Club Moss-Family Selaginella bigelovii Underw. Bigelow's Club-Moss (c) Selaginella cinerascens A.A. Eat. Pygmy Club-Moss (s,c) Polypodiaceae--Polypodium Family Polypodium californicum Kaulf. California Polypody Fern (c) Pterideceae--Ferns Adiantum jordani K. Mull. California Maidenhair (c) Notholaena newberryi D.C. Eat. Cotton Fern (c,s) Pellaea andromedaefolia (Kaulf.) Fee. Coffee Fern (c,s) Pellaea mucronata (D.C. Eat) D.C. Eat. var. mucronata. Bird's Foot Fern (s) Pityrogramma triangularis (Kaulf.) Maxon var. triangularis. Goldenback Fern (c) Pityrogramma triangularis var. viscosa (Nutt. ex D.C. Eat). Weath. Silverback Fern (c) Anacariaceae--Sumac Family Malosma laurina (Nutt.) Nutt. ex Abrams. Laurel Sumac (s,c,o) Rhus integrifolia (Nutt.) Brewer & Watson. Lemonadeberry (s) Schinus molle L. Pepper-tree (r,*) Toxicodendron diversilobum (T.& G.) Greene. Poison Oak (o,r) Annoaceae Rollinia sp. (g,*) Apiaceae--Carrot Family Apiastrum angustifolium Nutt. in T.& G. Wild Celery (r) *Apium graveolens L. Celery (r) Daucus pusillus Michx. Rattlesnakeweed (g,r) *Foeniculum vulgare Mill. Fennel (g,r) Asteraceae--Sunflower Family Ambrosia acanthicarpa Hook (g) Aster exilis Ell. (r) Ambrosia psilostachya var. californica (Rydb.) Blake. (r,o,c) Western Ragweed Artemisia californica Less. Coastal Sagebrush (s) Artemisia douglasiana Bess. in Hook. Mugwort (r) Artemisia palmeri Gray. San Diego Wormwood (r)Baccharis emoryi Gray. Chaparral Broom (s,c) Baccharis glutinosa Pers. Mule Fat (r) Baccharis sarothroides Gray. Herba del Pasmo (s,c,r) Asclepiadaceae

Asclepias fascicularis Done.in A.D.C. (c,s)

Brickellia californica Gray. Brickellbush (s) Centaurea melintensis L. Tocalote (G1*) Chaenactis artemisiaefolia (Harv. & Gray.) Gray. (c,s) White Pincushion Flower Chrysopsis villosa (Pursh) Nutt. var. sessiliflora (Nutt.) (s) Gray Cirsium vulgare (Savi) Ten. Bull Thistle (g,r,*) Conyza canadensis (L.) Cronq. Horseweed (g,s) Corethrogyne filaginifolia var. linifolia Hall. Del Mar Sand Aster (s) Corethrogyne filaginifolia var. virgata (Benth.) Gray. Sand Aster (g,s) Cotula coronopifolia L. Brass-Buttons (r) Cynara cardunculus L. Cardoon (r,*) Erigeron foliosus (Nutt.) Gray. Felabane (s,c) Eriophyllum confertiflorum (D.C.) Gray. var. confertiflorum. Golden-Yarrow (s,c) Gnaphalium beneolens Davids. Fragrant Everlasting (s) Gnaphalium bicolor Biletti (s) Gnaphalium californicum D.C. Green Everlasting Flower (s) Gnaphalium chilense Spreng. Cotton-Batting Plant (s) Gnaphalium palustre Nutt. (s) Gutierrezia bracteata Abrams. Matchweed (s) Haplopappus squarrosus ssp. grindelioides (D.C.) Keck Sawtooth Goldenbush (r,s) Haplopappus venetus ssp. furfuraceus (Greene) Hall. Isocoma (r,s) Haplopappus venetus ssp. vernonioides (Nutt.) Hall. Isocoma (**r**, **s**) Hedypnois cretica (L.) Villd. (g,*) Heterotheca grandiflora Nutt. Telegraphweed (r,s) Holocarpha virgata ssp. elongata Keck. Tarweed (g) Matricaria matricarioides (Less.) Porter. Pineapple Weed (g,s) Iva hayesiana Gray. (r) Lactuca serriola L. Wild Lettuce (r*) Microseris linearifolia (DC.) Sch.-Bip. Silver-Puffs (g) Perezia microcephela (DC) Gray (g) Pluchea purpurascens (SW) DC Marsh Fleabane (r) Porophyllum gracile Benth. (s) Sonchus oleraceus L. Sow Thistle (r,s,*) Stephanomeria virgata Benth. Stephanomeria (g) Xanthium strumarium L. var. canadensis (Mill.) T.& G. Cocklebur (r,g) Xanthium spinosum L. Spiny clotbur (r) Berberidaceae -- Barberry Family Berberis sp. wov. (s) Boraginaceae--Borage Family Cryptantha intermedia (Gray) Greene. Nievitas (g) Heliotropium currassavicum ssp. oculatum (Heller) Thorne. Wild Heliotrope (r,g) Buxaceae - Box Family Simmodisia chilensis (Link) c.k. Schneid. (s)

Brassicaceae--Mustard Family Brassica geniculata (Desf.) J. Ball. Wild Mustard (g,*) Lepidium sp. Peppergrass (s) Lobularia maritima (L.) Desv. Sweet Alyssrum (g,*) Raphanus sativus L. Wild Radish (g,*) Rorippa nasturtium aquaticum (L.) Schinz & Thell. Watercress (r,*) Cactaceae--Cactus Family Ferocactus viridescens (Nutt.) Britton & Rose. (g,s)Coast Barrel Cactus Opuntia ficus-indica (L.) Miller. Indian Fig (g) Opuntia littoralis (Engelm.) Ckll. Shore Cactus (s) Opuntia "occidentalis" (r) Opuntia prolifera Engelm. Coast Cholla (s) Capparaceae--Caper Family Isomeris arborea Nutt. var. arborea. Bladderpod (s) Caprifoliaceae--Honeysuckle Family Lonicera subspicata var. denudata Rehd. Wild Honeysuckle (o,r,c) Sambucus mexicana Presl. Mexican Elderberry (r,g) Caryophyllaceae - Pink Family Cardionema ramosissium (Weinm.) Nels. Macbr. (s) Cerastum glomeratum Thuill (r.*) Silene sp. Catchfly (g,*) Spergula arvensis L. Spurrey (g,*) Chenopodiaceae--Goosefoot Family Atriplex patula ssp. hastata (L.) Hall & Clem Saltbush (r) Atriplex semibaccata R. Br. Australian Saltbush (g,r,*) Chenopodium ambrosioides L. Mexican Tea (r.*) Chenopodium murale. Nettle-leaved Goosefoot (r,*) Salsola iberica Sennen & Pau. Russian Thistle (g,s,r,*) Cistaceae--Rock-Rose Family Helianthemum scoparium Nutt. Sun-Rose (s) Convolvulaceae--Morning Glory Family Calystegia macrostegia ssp. arida (Greene) Brummitt. Chaparral Mornin-Glory (c,s) Cuscuta californica H. & A. Dodder (o,r) Dichondra occidentalis House. (c) Crassulaceae--Stonecrop Family Crassula erecta (H&A) Berger. Dwarf Stonecrop (s) Dudleya edulis (Nutt.) Moran. Mission Lettuce (s) Dudleya pulverulenta (Nutt.) Britt. & Rose. Siempreviva (s) Dudleya lanceolata (Nutt.) Britt & Rose (s) Cucurbitaceae--Gourd Family Cucurbita foetidissima HBK (r) Marah macrocarpus (Greene) Greene. Wild Cucumber (c.s)

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Ericaceae--Heath Family Arctostaphylos glandulosa ssp. crassifolia (Jeps.) Wells (taxa in question) (Comarostaphylis diversifolia (Perry) Greene var. diversifolia (c) Xylococcus bicolor Nutt. Mission Manzanita (c) Euphorbiaceae--Spurge Family Eremocarpus setigerus (Hook.) Benth. Doveweed (g) Euphorbia polycarpa Benth. Fairy Mats (s) Ricinus communis L. Castor-Bean (r,*) Fabaceae--Pea Family Amorpha fruticosa var. occidentalis (Abroms.) Kearn & Peeb. (r) Astragalus trichopodus ssp. leucopsis (T & G) Thorne Coast Locoweed (s) Lotus scoparius (Nutt. ex T&G) Ottley ssp. scoparius. Deerweed (g,s) Medicago polymorpha L. Bur-Clover (g,*) Melilotus albus Desr. White Sweet-Clover (r.*) Prosopis glandulosa Torr. var. torreyana (L. Benson) M.C. Jtn. Mesquite (g) Fagaceae--Beech Family Quercus agrifolia Nee. Coast Live Oak (o) Quercus chrysolepis Liebum (s) Quercus dumosa Nutt. Scrub Oak (s,o,c) Frankenjaceae--Frankenia Family Frankenia grandiflora Cham. & Schlecht. (r) Hydrophyllaceae--Waterleaf Family Eriodictyon crassifolium Benth. Woolly Yerba Santa (s,c) Pholistoma auritum (Lindl.) Lilja. (s) Lamiaceae--Mint Family Acanthomintaa ilicifolia (Gray) Gray. San Diego Thornmint (g) Marrubium vulgare L. Horehound (g,*) Monardella linoides Gray. ssp. viminea (Green) Abrams Poway Mint (s). Salvia apiana Jeps. White Sage (s,c) Salvia mellifera Greene. Black Sage (s,c) Stachys rigida spp. quercetorum (Heller.) Epl. (r) Trichostema lanceolatum Benth Vinegar Weed (g) Pogogyae abramsii (V) Malvaceae-Mallow Family Malacothamnus fasciculatus (Nutt.) Greene var. fasciculatus Bush Mallow (s,c) Malva parviflora L. Cheeseweed (g.*) Myrtaceae-Myrtly Family Eucalyptus sp. (r,*)

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Nyctaginaceae-Four O'Clock Family Mirabilis californica Gray var. californica. Wishbone Bush (s) Oleoceae--Olive Family Olea europea L. Mission Olive (s,r,*) Onagraceae--Evening-Primrose Family Camissonia strigulosa (Fisch. & Meyers) Raven (g) Clarkia sp. (g,s) Epilobium (r) Zauschneria californica Presl. var. californica (s,c) Oxalidaceae--Wood-Sorrel Family Oxalis albicans ssp. pilosa (Nutt.) Eiten. Hairy Oxalis (g,s) Plantaginaceae--Plantain Family Plantago major L. Common Plantain (r,g,*) Plantanaceae--Plane-Tree Family Platanus racemosa Nutt. Western Sycamore (r) Plumbaginaceae--Leadwort Family Limonium californicum (Boiss.) Heller. Sea Lavender (r) Polemoniaceae--Phlox Family Navarretia hamata Greene. Skunkweed (s,c) Polygonaceae--Buckwheat Family Chorizanthe fimbriata Nutt. Fringed Turkish Rugging (s) Chorizanthe polygonoides ssp. longispina (Goodman) Munz, comb. nov. (c) Eriogonum elongatum Benth. Long-stemmed Buckwheat (s) Eriogonum gracile Benth (c,o) Eriogonum fasciculatum Benth. ssp. fasciculatum. Flat-top Buckwheat (s,g) Polygonum aviculare L. Knotweed (g, *) Rumex crispus L. Curly Dock (r,*) Portulacaceae--Purslane Family Claytonia perfoliata Donn. Miner's Lettuce (s,c) Primulaceae--Primrose Family Anagallis arvensis L. Pimpernel (g.*) Samolus paruiflorus Raf. Water-Pimpernel (r) Ranunculaceae--Crowfoot Family Clematis pauciflora Nutt. in T. & G. Virgin's Bower (c) Delphinium parryi Gray. Larkspur (g) Rhamnaceae--Buckthorn Family Adolphia californica Wats. California Adolphia (s) Ceanothus tomentosus ssp. olivaceus (Jeps) Munz (c) Ceanothus verrucosus Nuttin T & G Warty-Stemmed Ceanothus (c) Rhamnus crocea Nutt. In T. & H Redberry (s,c,o)

Rosaceae--Rose Family Adenostoma fasciculatum H.&A. Chamise (c) Cercocarpus minutifloraus Abrams. Mountain Mahogany (c) Heteromeles arbutifolia (Ait.) M. Roem. Toyon (s,o,c) Malus sp. Apple (g,*) Prunus armeniaca L. Apricot(g,*) Prunus ilicifolia (Nutt.) Walp. (c,o) Pyrus sp. Pear (g,*) Rosa californica C.& S. California Wild Rose (r,g) Rubus ursinus C. & S. California Blackberry (r,g) Rubiaceae--Madder Family Galium angustifolium Nutt. Bedstraw (s,c) Galium nuttaillii Gray. Nuttall Bedstraw (s,c) Salicaceae--Willow Family Populus fremontii Wats. Fremont Cottonwood (r) Salix goodingii Ball. Black Willow (r) Salix lasiolepsis Benth. Arroyo Willow (r) Salix hindsiana Benth. Sandbar Willow (r) Saururaceae--Lizard-Tail Family Anemopsis californicus Hook. Yerba Mansa (r) Saxifragaceae--Saxifrage Family Jepsonia parryi (Torr.) Small. Mesa Saxifrage (s,c) Ribes indecorum Eastw. Winter Currant (c,o) Ribes speciosum Pursh. Fushia-Flowered Gooseberry (c,o) Scrophulariaceae-Figwort Family Antirrhinum nuttallianum Benth. in DC. Nuttall's Snapdragon (s) Collinsia heterophylla Buist ex. Grah. var. heterophylla Chinese Houses (g,o) Cordylanthus filifolius Nutt. ex Benth. in D.C. Bird's Beak (g,s) Mimulus guttatus Fisch. ex DC. ssp. guttatus (r) Mimulus puniceus (Nutt.) Steud. (s,o) Orthocarpus purpurascens Benth. Owl's-Clover (g) Penstemon spectabilis Thrub. ex Gray. Violet Beard-Tongue (c,s) Scrophularia californica var. floribunda Greene. Bee Plant (s) Pedicularis densifiora (C) Solanaceae -- Nightshade Family Datura strumarium L. Minsonweed (g,*) Nicotiana glauca Grah. Tree Tobacco (g,*) Solanum elacagnifolium Cav. Silverleaf-Nettle (g,*) Solanum nigrum L. (g,*) Talaricaceae--Tamarisk Family Tamarix sp. Tamarisk (r,*)

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Urticaceae--Nettle Family Urtica holoserecia Nutt. Nettle (r) Viscaceae--Mistletoe Family Phoradendron tomentosom ssp. macrophyllum (Engelm.) Weins. Mistletoe (r.o) Agavaceae--Agave Family Agave americana L. (g,*) Yucca schidigera Toezl ex Ortiges. Spanish Bayonet (s) Amaryllidaceae Amaryllis Family Bloomeria croceae (Torr.) Cov. var. crocea. Golden Stars (g) Dichelostemma pulchellum (Salisb.) Heller. Wild Hyacinth (g) Muilla clevelandii (g) Cyperaceae--Sedge Family Carex lanuginosa Michx. (r) Eleocharis montevidensis Kunth. Slender Creeping Spike-Rush (r) Scirpus acutus Muhl. Tule (r) Scirpus robustus Pursh (r) carex triquetra (r) Iridaceae--Iris Family Sisyrinchium bellum Wats. Blue-Eyed-Grass (g) Juncaceae--Rush Family Juncus acutus L. var. sphaerocarpus Engelm (r) Juncus bufonius L. Toad Rush (r) Juncus mexicanus Willd. Mexican Rush (r) Lemnaceae-Duckweed Family Lemna minima Phil. (r) Liliaceae--Lily Family Calochortus splendens Dougl. ex Benth (g,s) Calochortus weedii Wood var. weedii. (c) Chlorogalum parviflorum Wats Armole (s.g) Poaceae--Grass Family Avena barbata Brot. Slender Wild Oats (g,*) Bothriochloa barbinodis (Lag.) Herter. Beard Grass (s) Bromus diandrus Roth. Ripgutgrass (g,*) Bromus mollis L. Soft Chess (g,*) Bromus rubens L. Red Brome (g,*) Cortaderia jubata (Lem.) Stapf. Pampass Grass (g,*) Cynodon datylon (L.) Pers. Bermudagrass (g) Distichlis spicata (L.) Greene var. spicata. Saltgrass (r,g) Elymus condensatus Presl. Giant Wild Rye (g,s) Elymus glaucus Buckl. ssp. glaucus (g,s) Gastridium ventricosum (Gouan) Schinz & Thell. Nitgrass (g.*)

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Lamarckia aurea (L.) Moench. Goldentop (g,*) Lolium perenne ssp. multiflorum (Lam.) Husnot. Italian Ryegrass (g,k) Muhlenbergia microsperma (DC) Kunth. Littleseed Muhly (g,s) Polypogon monspliensis (L.) Desf. Rabbitfoot Grass (g,*) Stipa coronata Thrub. in Wats. Giant Stipa (s,c) Stipa pulchra Hitchc. Nodding Stipa (s)

Typhaceae

Typha domingensis Pers. Cat-tail (r)

KEY

* Non-Native taxa

s Sage scrub community

c Chaparral community

r Riparian community

o Oak woodland community

g Grassland community (includes man-altered habitat)

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TABLE 1.	FLORAL CHECKLIST OF LOS PEÑASQUE By Mitch Brauch	tos Canyon From I-15 to	I-805.
HABITAT	A = Annual Grassland C = Southern Mixed Chaparral D = Diegan Sage Scrub	O = Oak Woodland W = Wetlands	
CRYPTOGAMS		FLOWERING SEASON	HABITAT
FERNS	ъ.		
Pellaea andro Pellaea mucro	dani K Muell. California Maidenhair omedifolia (Kaulf.)Fée Coffee Fern onata (D.C. Eaton)D.C. Eaton Bird's Foot Cliff-Brake a triangularis var. viscosa (Nutt. ex D.C. Eaton)Weath. Silver	back Fern	с с ср
Polypodiaceae Polypodium c	alifornicum Kaulf. California Polypody		с
SPIKE-Mosses			
	gelovii Underw. Common Spike-Moss nerascens A.A. Eat. Ashy Spike-Moss	•	D C
DICOTYLEDONS	· · ·		
Adoxecene - Adox Sambucus me	is Family xicana Presl ex DC. Desert Elderberry	Mar-Sep	D
	-weed Family <i>cernum crystallinum</i> L. Crystal Ice Plant <i>cernum nodiflorum</i> L. Little Ice Plant	Mar-Oct Apr-Nov	A A
Rhus integrifo Schinus molle	ing (Nutt.)Nutt. ex Abrams Laurel-Leaf Sumac lia (Nutt.)Benth. & Hook. Lemonade Berry	Jun-Jul Feb-May Jun-Sep Apr-May	D D A C,O,W
Daucus pusille • Foeniculum vi Lomatium luc	Family lanon L. Poison Hemlock us Michx. Rattlesnake Weed ulgare Mill. Sweet Fennel idum (Nutt.)Coult & Rose unatifida Dougl. ex Hook. Purple Sanicle	Apr-Sep Apr-Jun May-Sep Jan-May Mar-May	W D A,W D A,D
Asclepiadaceae - M Asclepias fasci	lilkweed Family icularis Dene. in A. DC. Narrow-Leaf Milkweed	Jul-Aug	w
Asteraceae - Sunflo Achillea millej Acourtia micro Ambrosia psilo Ambrosia pum Mortemisi cotu Artemisia calij Artemisia dou Artemisia drac Artemisia pain		Apr-Aug Jun-Aug Jul-Nov May-Oct Apr-Aug Aug-Oct Jun-Oct Aug-Oct Jul-Sep Aug-Dec	D D W A A D W W W W W

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		FLOWERING	
		SEASON	HABITAT
Ae	teracese - Sunflower Family (continued)		MADUAL
	Baccharis pilularis ssp. consanguinea (DC.)C.B. Wolf Coyote Brush	Jun-Oct	D,W
	Baccharis salicifolia (R. & P.)Pers. Mule-fat	Jul-Oct	W
	Baccharis sarothroides Gray Broom Baccharis	Jul-Oct	D
	Brickellia californica (T. & G.)Gray California Brickellbush	Aug-Oct	D
	Calycadenia tenella (Nutt.) T. & G. Rosinweed	May-Oct	D
	Centaurea melitensis L. Tocalote	May-Jun	A
	Chaenacets glabriuscula var. tenuifolia (Nutt.)Hall San Diego Pincushion	Apr-Jul	D
	Chaetopappa aurea (Nutt.)Keck Golden Daisy	Apr-Jul	D
	Chrysanthemum coronarium L. Garland Chrysanthemum	Apr-Aug	A
	Arsium californicum Gray California Thistle	Mar-May	. W
	Conyza bonariensis (L.)Cronq. Flax-Leaf Fleabane	Jun-Aug	Α
	Conyza canadensis (L)Crong. Horseweed	May-Oct	А
	Coreopsis mariama (Nutt.)Hook f. San Diego Sea-Dahlia	Mar-May	D
	Corethrogyne filoginifolia var. virgata (Benth.) Gray Virgate Cudweed-Aster	May-Oct	D
	Cotula coronopifolia L. Brass-Buttons	Mar-Dec	w
	Encelia californica Nutt. California Encelia	Feb-Jun	D
	Eriophyllum confertiflorum (DC.)Gray var. confertiflorum Golden-Yarrow	Apr-Aug	D
2 .	Filago gallica L. Narrow-Leaf Filago	Apr-Jun	· C,D
	Gnaphalium bicolor Bioletti Bicolor Cudweed	Jan-May	D
	Gnaphalium californicum DC. California Everlasting	Jan-Jul	D
	Gnaphalium microcephalum Nutt. White Everlasting	Jul-Oct	D
	Gutierrezia californica (DC)T. & G. Broom Matchweed	May-Oct	D
	Hazardia squarrosa ssp. grindelioides (DC.)Clarke Sawtooth Goldenbush	Jul-Oct	D
	Hedypnois cretica (L)Willd. Crete Hedypnois	Mar-May	A
	Helianthus annuus ssp. lenticularis (Dougl.)Ckll. Western Sunflower	Feb-Oct	. W
	Hemizonia fasciculata (DC.)T. & G. Fascicled Tarweed	May-Sep All-Year	A
	Heterotheca grandiflora Nutt. Telegraph Weed Hypochoeris glabra L. Smooth Cat's-ears	Mar-Jun	A A
	Isocoma menziesii var. vernonioides (Nutt.)Newsom Coastal Goldenbush	Oct-Dec	D,W
	Lactuce serriola L. Prickly Lettuce	May-Sep	A,W
	Lasthenia californica DC. ex Lindley Goldfields	May-Sep Mar-May	D
	Matricaria matricarioides (Less.)Porter Pineapple Weed	May-Aug	w
	Senecio californicus DC. California Butterweed	Apr-Oct	D
	Senecio vulgaris L. Common Groundsel	Jan-May	Ā
	Sonchus asper (L)Hill Spiny-Leaf Sow-Thistle	All Year	A
	Sonchus oleraceus L. Common Sow-Thistle	All Year	A
	Stephanomeria diegensis Gottlieb San Diego Wreath-Plant	Jul-Oct	A.D
	Stephanomeria exigua Nutt. ssp. exigua Small Wreath-Plant	Apr-May	W
	Stephanomeria virgata Benth. ssp. virgata Virgate Wreath-Plant	Jul-Oct	A,D
	Viguiera laciniata Gray San Diego Sunflower	Feb-Jun	D
	Xanthium strionarium var. canadense (Mill.)T. & G. Cocklebur	Jul-Oct	w
Beri	beridaceae - Barberry Family		
	Mahonia species nova. Poway Mahonia	Feb-Apr	С
_			
Bor	aginaceae - Borage Family		
	Amsinckia intermedia F. & M. Rancher's Fiddleneck	Mar-Jun	A,D
	Cryptantha intermedia (Gray)Greene Nievitas	Mar-Jul	A,D
	Heliotropium curvassavicum var. oculatum (Heller)Jtn. Salt Heliotrope	Mar-Oct	w
Bre	ssicaceae - Mustard Family	5 . 0	.2
	Brassica geniculata (Desf.)J. Ball Short-pod Mustard	May-Oct	А
	Brassica nigra (L)Koch Black Mustard	Apr-Jul	A
	Cardanine californica (Nutt.)Greene Milkmaids	Feb-May	D
	Lepidium virginicum var. robinsonii (Thell.)C.L. Hitche. Robinson's Peppergrass	Jan-Apr	D
	Lobularia maritima (L)Desv. Sweet Alyssum	All Year	Ă
	Nasturium officinale R. Br. White Water-Cress	Mar-Nov	Ŵ
	Raphanus sativus L. Wild Radish	Feb-Jul	A
	Sisymbrium altissimum L. Tumble-Mustard	May-Jun	A
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(CONTRICED).	Frommania	
	FLOWERING	
	SEASON	HABITAT
Cactaceae - Cactus Family		
Ferocactus viridescens (Nutt.)Britton & Rose Coast Barrel Cactus	May-Jun	D
Mammillaria dioica K. Bdg. Fish-hook Cactus	Feb-Apr	. D
Opuntia littoralis (Engelm.)Ckll. var. littoralis Coast Prickly-Pear	May-Jun	D
Opunda oricola Philbrick	Apr-Jun	D
Opunda prolifera Engelm. Coast Cholla	Apr-Jun	D
6		
Capparaceae - Caper Family	All Year	5
Geome isomeris Greene Bladderpod	All I car	D
Caprifolincene - Honeysuckle Family		
Lonicera subspicata var. denudata Rehd. San Diego Honeysuckle	Apr-Jun	D
Caryophyllaceae - Pink Family		
Cardionema ramosissima (Weinm.)Neis. & Macbr. Tread Lightly	Apr-Aug	D
* Silene gallica L. Common Catchfly	Feb-Jun	D
Silene laciniata ssp. major Hitche, & Maguire Southern Pink	May-Jul	D
	-54	
Chenopodiaceae - Goosefoot Family	34L	
Atriplex lentiformis (Torr.)Wats. Quail Saltbush	Jul-Oct	Α
Astriplex leucophylla (Moq. in DC.)D. Dietr. Sea Scale	Apr-Oct	W
Apriplex panula ssp. hastata (L)Hall & Clem. Halberd-Leaf Saltbush	Jun-Nov	w
* Atriplex semibaccata R. Br. Australian Saltbush	Apr-Dec	А
 Chenopodium ambrosioides L. Mexican-Tea 	Jun-Oct	w
Chenopodium californicum (Wats.)Wats. California Goosefoot	Mar-Jun	D.
* Chenopodium murale L. Nettle-Leaf Goosefoot	All Year	D
* Salsola australis R. Br. Russian-thistle	Jul-Oct	А
Cistaceae - Rock-Rose Family		
Helianthemum scoparium var. aldersonil (Greene)Munz Rush-Rose	Mar-Jun	С
Convolvalaceae - Morning-Glory Family		
Calystegia macrostegia ssp. tenuifolia (Abrams)Brummitt Narrow-leaf Morning-Glory	Mar-May	D
Cuscuta californica H. & A. Witch's Hair	May-Aug	D
Dichondra occidentalis House Western Ponyfoot	Mar-May	C,D
Store records on a to be a final state front count and a line over the assessment of the store to be		
Crassulaceae - Stonecrop Family		
Crassula connata (Ruiz & Pav.)Berger in Engl. & Pranti var. connata Dwarf Stonecrop	Feb-May	D
Dudleya brevifolia Moran Del Mar Hasseanthus	Apr-Jun	С
Dudleya edulis (Nutt.)Moran Ladies-Fingers	May-Jun	D
Dudleya lanceolata (Nutt.)Britt. & Rose Coastal Dudleya	May-Jul	D
Dudleya pulverulenta (Nutt.)Britt. & Rose Chaik-lettuce	May-Jul	D
THE FOR THE DESIGN OF THE PERSON OF THE		
Cocurbitaceae - Gourd Family		
Cucurbita foetidissima HBK. Calabazilla	Jun-Aug	Α
Marah macrocarpus (Greene)Greene Manroot, Wild-Cucumber	Jan-Apr	D
Dipsaceae	2121 1212	_
 Dipsacus sativus (L)Honckeny. [D. fullonum L] Common Teasel 	May-Jul	D
	¥	
Ericaceae - Heath Family	D	6
Arctostaphylos glandulosa ssp. crassifolia (Jeps.)Wells Del Mar Manzanita	Dec-Apr	c
Comarostaphylis diversifolia (Parry)Greene ssp. diversifolia Summer-Holly	May-Jun	c
Xylococcus bicolor Nutt. Mission Manzanita	Dec-Feb	С
Frankastingan Saura Partitu		
Euphorbiaceae - Spurge Family	A 11 V	D
Chamaesyce polycarpa var. hirtella (Boiss.)Millsp. Desert Sandmat	All Year	ם
Croton californicus Muell-Arg. var. californicus	Mar-Jun	
Eremocarpus setigerus (Hook.)Benth. Doveweed	May-Oct	AW
* Ricinus communis L. Castor-Bean	All Year	w

(CONTINUED).		
	FLOWERING	
	SEASON	HABITAT
Fabacese - Pca Family	Charles Continues	
Astragalus didymocarpus H. & A. var. didymocarpus White Dwarf Locoweed	Feb-May	D
Astragalus trichopodus ssp. Leucopsis (T. & G.) Thome Locoweed	Feb-Jun	Ã
Lotus purshianus (Benth.) Clem. & Clem. Spanish-Clover	May-Oct	w
Lotus scoparius (Nutt. in T. & G.)Ottley ssp. scoparius Coastal Deerweed	Mar-Aug	
		D
Lupinus bicolor ssp. microphyllus (Wats.)D. Dunn Lupine	Mar-Jun	D
Lupinus densiflorus ssp. austrocollium (C. P. Sm.)D. Dunn ex Thorne	Apr-May	D
 Medicago polymorpha L. California Bur-Clover 	Mar-Jun	A
 Melilotus albus Desr. White Sweet Clover 	May-Sep	W
 Melilous indicus (L)All. Indian Sweet Cloves 	Apr-Oct	w
Fagacese - Oak Family		
에 가장 바람이 있었던 가까지 이 것 같아요. 이 가장 이 있는 것 같아요. 이 가장 이 가	Mar Ane	0
Quercus agrifolia Neé var. agrifolia Coast Live Oak	Mar-Apr	0
Quercus dumosa Nutt. Scrub Oak	Mar-May	С
Quercus engelmannii Greene Mesa Blue Oak, Engelmann Oak	Apr-May	0
Gentianaceae - Gentian Family		
Centaurium venusum (Gray)Rob. Canchalagua	May-Jul	D
Centernum venusium (Gray) Nov. Calicitatagua	Iviay-Jul	D
Geraniacese - Geranium Family		
 Erodium botrys (Cav.)Bertol. Long-beak Filaree 	Mar-May	А
Erodium cicutarium (L)L'Hér. Red-stem Filaree	Feb-May	A
* Erodium moschatum (L)L'Hér. White-stem Filaree	Feb-May	A
Geranium carolinianum L. Carolina Geranium	Feb-May	A,C
	I CO-IVLAY	A,C
Grossplariaceae - Currant Family		
Ribes indecorum Eastw. Winter Current	Dec-Mar	С
Ribes speciosum Pursh Fuchsia-flowered Gooseberry	Jan-May	D
Add species in I and I deline however considery	Jen May .	D
Hydrophyllaceae - Watericaf Family		
Eriodiciyon crassifolium Benth. Yerba Santa	Apr-Jun	С
Phacelia cicutaria ssp. hispida (Gray)Beauch. Caterpillar Phacelia	Jan-Mar	CD
There is a spring the court of the second		40
Lamiaceae - Mint Family		
 Marrubium vulgare L. Horehound 	Mar-Aug	Α.
Salvia apiana Jeps. White Sage	Apr-Jul	D
Salvia mellifera Greene Black Sage	Apr-Jul	CD
Stachys rigida ssp. quercetorum (Heller)Epl. Hedge-Nettle	May-Sep	O,W
Malvaceae - Mallow Family		
Malacothamnus fasciculatus (Nutt.)Greene var. fasciculatus Mesa Bushmallow	Apr-Jul	D
 Malva parviflora L. Cheeseweed 	All Year	А
Sidalcea malvaeflora ssp. sparsifolia C.L. Hitche. Checkers	Mar-May	А
Myrtaceae - Myrtle Family		
 Eucalyptus camaldulensis Dehnhardt Murray River Red Gum 	Dec-May	w
	•	
Nyctaginaceae - Four-O'Clock Family	Dec-Jun	D
Mirabilis californica Gray Wishbone Plant	Dec-Jun	D
Onagraceae - Evening-Primrose Family		
Camissonia bistoria (Nutt. ex T. & G.)Raven. Southern Sun-cup	Mar-Jun	A.D
Clarkia purpurea (Curt.)Nels. & Macbr. Canyon Godetia	Apr-Jul	AD
Epilobium canum ssp. mexicanum (Presl)Raven.	Aug-Oct	D
Oenothera elata ssp. hirsutissima (Gray ex Wats.)Dietrich Great Marsh Evening-Primrose	Jun-Sep	w
Oralidanna Wood Samel Family		
Oxalidaceae - Wood-Sorrel Family	Mag Marr	5
Oxalis albicans ssp. pilosa (Nutt. ex T. & G.)Eiten	Mar-May	D

	FLOWERING SEASON	HABITAT
Paeoniaceae - Peony Family Paconia californica Nutt. in T. & G. California Peony	Jan-Mar	o
Papaveraceae - Poppy Family Eschscholzia californica var. peninsularis (Greene)Munz Annual California Poppy Plarystemon californicus Benth. var. californicus Cream Cups	Mar-May Feb-Jul	A,D A,D
Plantaginaceae - Plantain Family Plantago erecta Morris ssp. erecta Dot-seed Plantain	Mar-May	D
Platanaceae - Sycamore Family Platanus racemosa Nutt. Western Sycamore	Feb-Apr	w
Polemoniaceae - Phlox Family Linanthus dianthiflorus Greene Ground Fink Navarresia hamata Greene Skunkweed	Feb-Apr Apr-Jun	D D
 Polygonaceae - Buckwheat Family Chorizanthe fimbriata Nutt. var. fimbriata Fringed Spine-Flower Chorizanthe staticoides Benth. ssp. staticoides Turisish Rugging Eriogonum fasciculatum Benth. ssp. fasciculatum Flat-top Buckwheat Polygonum arenastrum Bor. Yard Knotweed Pterostegia drymarioides F. & M. Granny's Hairnet Rumex conglomeratus Murr. Whorled Dock Rumex crispus L. Curly Dock Rumex salicifolius Wienm. var. salicifolius Willow-leaf Dock 	May-Jun Apr-Jul Mar-Oct May-Nov Mar-May Apr-Oct All Year May-Sep	D CD A CD W W W
Portnlacacese - Purslanc Family Claytonia perfoliata Donn Common Miner's-Lettuce	Feb-May	o
Primulaceae - Primrose Family * Anagallis arvensis L. Scarlet Pimpernel Dodecatheon clevelandii Greene ssp. clevelandii Padre's Shooting Star	Mar-Jul Jan-Apr	A,D D
Ranunculaceae - Crowfoot Family Cematis pauciflora Nutt. in T. & G. Virgin's Bower Delphinium cardinale Hook. Scarlet Larkspur Delphinium parryi Gray var. parryi Parry's Larkspur Ranunculus californicus Benth. var. californicus California Buttercup Thalictrum polycarpum (Torr.)Wats. Meadow-Rue	Jan-Apr Jun-Aug Mar-Apr Feb-May Jul-Aug	D D O O,W
Rhamnaceae - Buckthorn Family Ceanothus tomentosus ssp. olivaceus (Jeps.)Munz Ramona-Lilac Ceanothus verrucosus Nutt. in T. & G. Coast White-lilac Rhamnus crocea Nutt. in T. & G. Spiny Redberry	Mar-May Jan-Apr Mar-Apr	С С Д
Rosaceae - Rose Family Adenostoma fasciculation H. & A. Common Chamise Alchemilla occidentalis Nutt. ex T. & G. Western Lady's-Mantle Cercocarpus minutiflorus Abrams Coastal Mountain-Mahogany Heteromeles arbuifolia (Ait.)M. Roem. Hollywood, Toyon Potentilla glandulosa Lindl. ssp. glandulosa Sticky Cinquefoil Prunus ilicifolia (Nutt.)Walp. Holly-leaf Cherry Rosa californica C. & S. Wild Rose	May-Jun Mar-Jun Mar-May Jun-Jul May-Jul Apr-May May-Aug	С С С, D С, D С, O С, W
Rubiaceae - Madder Family Galium angustifolium Nutt. ex T. & G. ssp. angustifolium Narrow-leaf Bedstraw Galium aparine L. Common Bedstraw Galium nuttallii Gray ssp. nuttallii Nuttall's Bedstraw	Apr-Jul Mar-Jul Mar-Jui	D 0 D

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	FLOWERING	
	SEASON	HABITAT
Rutaceae - Ruc Family		
Cheoridium dumosum (Nutt.)Hook f. Coast Spice Bush	Nov-Mar	С
Salicaceae - Willow Family		
Populus fremontil Wats. Western Cottonwood	Mar-Apr	w
Salir lastolepis Benth. var. lastolepis. Arroyo Willow	Feb-Apr	w
Saururaceae - Lizard-tail Family		
Anemopsis californica Hook. Yerba Mansa	Mar-Sep	w
Saxifragaceae - Saxifrage Family		
Jepsonia parryi (Torr.)Small Coast Jepsonia	Oct-Dec	C,D
Scrophulariaceae - Figwort Family		
Antirrhinum nuttallianum Benth. in DC. Nuttall's Snapdragon	Mar-Jul	D
Cassilleja affinis H. & A. ssp. affinis Coast Paint-Brush	Mar-May	D
Castilleja foliolosa H. & A. Felt Paint-Brush	Mar-Jun	D
Cordylanthus rigidus Nutt. ex Benth. Dark-tip Bird's-Beak	May-Aug	С
Diplacus aurantiacus ssp. australis (McMinn)R. M. Beeks ex Thorne	Jul-Sep	D
Diplacus puniceus Nutt. ex Taylor Coast Bush Monkeyflower	Mar-Jul	D
Linaria canadensis var. texana (Scheele)Penn. Large Blue Toadflax	Mar-May	Ā
Minulus brevipes Beath. Slope Semiphore	Apr-Jun	W
Orthocarpus purpurascens Benth. var. purpurascens Purple Owl's-Clover	Mar-May	A
Scrophularia californica var. floribunda Greene California Bee Plant	Mar-May	D
	Mana-Mau j	2
Solanaceae - Nightshade Family		• •
Datura wrighti Regel Western Jimsonweed	Apr-Oct	A,D
* Nicotiana glauca Grah. Tree Tobacco	Mar-Oct	w
Solarum americanum Mill. White Nightshade	Apr-Nov	D
Solarum douglasii Dunal in DC. Douglas' Nightshade	All Year	D,0
Solanum parishil Heller Parish's Nightshade	Mar-May	D,0
Solanum umbelliferum var. glabrescens Torr. Blue Witch	Feb-Jun	D
Solanum umbeuljerum val. gudorescens 1011. Blue Wilch Solanum xonti var. intermedium Parish Chaparral Nightshade	Feb-Jun	C
Soundan sand var. buermedium Farsi Chaparra Highishaoc	100-Juli	C
Tamaricaceae - Tamarisk Family		
• Tamarix parviflora DC. Salt-Cedar	Mar-Apr	w
Verbenaceae - Verbena Family		
Verbena lasiostachys Link Western Vervain	May-Sep	w
Violaceae - Violet Family		
Viola pedunculata T. & G. Yellow Johnny Jump-Ups	Feb-Apr	D,O
······································		-,-
MONOCOTYLEDONS		
Agavaceae- Agave Family		
Yucca schidigera Roczi ex Ortgies Mojave Yucca	Apr-May	С
Yucca whipplei Torr. Our Lord's Candle	Apr-May	D
Alliaceae - Onion Family		
Allium praecox Bdg. Early Onion	Mar-Apr	с
Bloomeria crocea (Torr.)Cov. ssp. crocea Common Golden-Stars	Apr-Jun	c
Dichelostemma pulchellum (Salisb.)Heller Wild-Hyacinth	Mar-May	D
Muilla clevelandii (Wats.)Hoover Cleveland's Golden-Stars	Mar-May	D
Comme encrementer (Transferonter Cresteration 2 Objueit-2012	Insut-Inta y	Ľ
Arecaceae- Palm Family		
Phoenix congriensis Chaub. Canary Island Date Palm	May-Oct	0
a maine culturiers a clique. Callary Island Dale I alli	may-Oct	0

	FLOWERING	
	SEASON	HABITAT
Cyperaceae - Sedge Family		
Cyperus eragrostis Lam. Tall Flatsedge	Mar-Jun	W
Eleocharis macrostachya Britt. in Small Pale Spike-Sedge	Apr-Nov	W
Scirpus robustus Pursh Prairie Bulrush	Apr-Aug	w
Iridaceae - Iris Family		
Siryrinchium bellum Wats. Blue-eyed-Grass	Mar-May	D
Juncaceae - Rush Family		
Juncus acunus ssp. leopoldii Engelm. Southwestern Spiny Rush	May-Jun	w
Juncus rugulosus Engelm. Wrinkled Rush	Apr-Jul	w
Liliacese - Lily Family		
Calochornus splendens Dougl. ex Benth. Splendid Mariposa-Lily	Apr-Jun	D
Calochoraus weedii Wood var. weedii Weed's Mariposa-Lily	May-Jul	D
Chlorogalum parviflorum Wats. Small-Flower Soap-Plant	May-Jun	D
Zigadenus fremoniii (Torr.) Torr. ex Wats. var. fremoniii Fremont's Camas	Mar-May	D
Orchidaceae - Orchid Family		
Habenaria unalascensis Wats. Slenderspire Piperia	Mar-Jul	O,W
Poaceae - Grass Family		
* Arundo donax L. Giant Cane	Mar-Sep	w
* Avena barbata L. Slender Oat	Mar-Jun	A
* Avena fatua L Wild Oat	Apr-Jun	Α
Bromus diandrus Roth Ripgut Grass	Apr-Jun	А
* Bromus mollis L. Soft Chess	Apr-Jul	·A
Bromus rubens L. Red Brome	Mar-Jun	А
 Cortaderia jubata (Lem.)Stapf Pampas Grass 	Jul-Oct	w
Distichlis spicata (L)Greene Coastal Salt Grass	Apr-Sep	w
." Festuca (Vulpia) myuros L. Foxtail Fescue	Apr-Jun	w
Muhlenbergia rigens (Benth.)Hitche. California Deergrass	Jun-Sep	0
 Polypogon monspeliensis (L)Desf. Annual Beardgrass 	Apr-Aug	W.
Typhaceae - Cat-Tail Family		
Typha latifolia L Soft Flag	Jun-Jul	W

* - Denotes non-native plant taxa

7

APPENDIX B

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PLANT LIST

PLANT CHECKLIST FOR PENASQUITOS REGIONAL PARK AND SURROUNDINGS

12/28/1995 Compiled from the Master Plan EIR (Maggie Loy Plant List), Mitch Beauchamp Plant List (Penasquitos Canyon from 1805 to 15) and Alan Pepper, Les Braud, Cindy Burrascano, Mike Kelly, and Melanie Howe
 Nomenclature follows the Jepson Manual (1993) (J:) refers to the nomenclature found in the Jepson Manual
 Sce last page for explanations of catergories used in listings for Federal, State, and CNPS

 Non-native s sensitive species *** Non-native invasive 	C = Southern Mixed Chaparral S = Diegan Coastal sage scrub F = Ficlds and waste places G = Annual Grassland	O = Oak Woodland VP = Vernal Pools W = Wetlands	^ Scpt 30, Federal Re		~ 1994 CNI Inventory	PS	
				Blooming	Federal^ / State	List	
Ferns and Fern-Alli		Common Name	Habitat	Period	Status	(1224)	R-E-D
Azollaceae	Mosquito Fern Family Azolla filiculoides	Duck Weed	w				
Dennstaedtiaccae	Bracken Family Pteridium aquilinum var. pubescens	Western Bracken	, w				
Isoetaccae	Quillwort Family Isoetes howellii Isoetes orcuttii	Howell's Quillwort Orcutt's Quillwort	VP VP				
Ophioglossaceae s	Adder's-Tongue Family Ophioglossum californicum	California Adder's Tongue	C,G,VP		C3c/nonc	4	1-2-2
Polypodiaceae	Polypody Family Polypodium californicum	California Polypody	C,S				
Pteridaceae	Brake Family Adiantum jordanii Aspidotis californica (Cheilanthis californica)	California Maidenhair Lace Fern	С				
	Cheilanthes newberryi	Cotton Fern	C,S				
	Pellaea andromedifolia	Coffee Fern	C,S				
	Pellaea mucronata Pentagramma triangularis ssp. triagularis	Bird's Foot Fern Goldenback Fern	S C				

	(Pityrogramma triangularis ssp. triagularis) Pentagramma triangularis ssp. viscosa (Pityrogramma triangularis ssp. viscosa)	Silverback Fern	С				
Selaginellaceac	Spike Moss Family						
	Selaginella bigelovii	Common Spike-Moss	S				
S	Selaginella cinerascens	Ashy Spike-Moss	C,S		CEQA?	4	1-2-1
DICOTYLEDO	NS						
Aizoaceae	Carpet-weed Family						
Tunouccae	*** Carpobrotus chilensis	Sea Fig	C,W	Apr-Sep			
	*** Carpobrotus edulis	Hottentol Fig	C,W	npi-bep			
	* Mesembryanthemum crystallinum	Crystal Ice Plant	C	Mar-Oct			
	* Mesembryanthemum nodiflorum	Little Ice Plant	č	Apr-Nov			
Anacardiaceae	Sumac Family						
	Malosma laurina	Laurel-Leaf Sumac	S	Jun-Jul			
	Rhus integrifolia	Lemonade Berry	S	Feb-May			
	Rhus ovata	Sugarbush	С	Mar-May			
	Rhus trilobata	Basketbush	C	Mar-Apr			
	*** Schinus molle	Peruvian Peppertree	С	Jun-Sep			
	*** Schinus terebinthifolius	Brazilian Peppertree	W	Mar-Jun			
	Toxicodenron diversilobum	Poison Oak	C,O,W	Apr-May			
Apiaceae	Carrot Family						
	Apiastrum angustifolium	Wild Celery	C,S,W	Mar-May			
	* Apium graveolens	Celery	w	May-July			
	* Conium maculatum	Poison Hemlock	G,W	Apr-Sep			
	* Daucus carota	Wild Carrot, Queen Anne's Lace	w	Apr-Jul			
	Daucus pusillus	Rattlesnake Weed	S	Apr-Jun			
S	Eryngium aristulatum ssp. parishii	S.D. Button Celery, SD Coyote Thistle	VP	Apr-Jun	FE/CE	1B	2-3-2
	*** Foeniculum vulgare	Sweet Fennel	G,W	May-Sep			
	Hydrocotyle verticillata	Whorled Marsh-Pennywort	R	Apr-Sep			
	Lomatium lucidum	Shiny Lomatium	S	Jan-May			
	Sanicula bipinnatifida	Purple Sanicle	G,S	Mar-May			

Araliaceae	Ginseng Family						
	* Hedera helix	English Ivy	R	Jun-Sep			
Asclepiadaceae	Milkweed Family						
	Asclepias fascicularis	Narrow-Leaf Milkweed	S,W	Jul-Aug			
Asteraceae	Sunflower Family						
	Achillea millefolium var. californica	California Yarrow	S	Apr-Aug			
	Achillea millefolium var. millefolium	Common Yarrow	S	May-Jun			
	Acourtia microcephala	Sacapellote, Purplcheads	S	Jun-Aug			
	Ambrosia acanthicarpa	Annual Bur-Sage	G	Jul-Oct			
ξ.	Ambrosia psilostachya var. californica	Western Ragweed	C,O,W	Jul-Nov			
S	Ambrosia punila (N.C. c.eek, E. & bik At. At)	San Diego Ragweed	C,G,S,VP	•	C2/nonc	1B	3-3-2
	Anthemis cotula	Dog -Fennel, Mayweed	C,G,W	Apr-Aug		٠	
	Artemisia californica	California Sagebrush	S	Aug-Oct			
	Artemisia douglasiana	Mugwort	w	Jun-Oct			
	Artemisia dracunculus	Dragon Sagewort, Taragon	w	Aug-Oct	CEQA	2	2-2-1
S	Artemisia palmeri	San Diego Sagewort	w	Jul-Scp			
	Aster subulatus var. ligulatus (Aster exilis)	Slim Aster	W	Aug-Oct			
	Baccharis emoryi	Emory's Baccharis	W	Aug-Dec			
	Baccharis piluaris ssp. consanguinea	Coyote Brush	C,W	Jun-Oct			
	Baccharis salicifolia (B. glutinosa)	Mule-fat	w	Jul-Oct			
	Baccharis sarothroides	Broom Baccharis	S	Jul-Oct			
	Brickellia californica	Brickellbush	S	Aug-Oct			
*	Carduus pycnocephalus	Italian Thistle	W	May-Jul			
	*** Centaurea calcitrapa	Purple Star Thistle	G	Jul-Oct			
	*** Centaurea melitensis	Tocalote	G	May-Jun			
	Chaenactis artemisiifolia	White Pincushion Flower	C,S	Apr-Jul			
	Chaenactis glabriuscula	Yellow Pincushion Flower	C,G	Mar-May			
•	*** Chrysanthemum coronarium	Garland Chrysanthemum	G	Apr-Aug			
	Cirsium occidentale var. californicum	California Thistle	w	Mar-May			
	(Circium californicum)						
	* Cirsium vulgare	Bull Thistle	G,W	May-Sep			
	* Conyza bonariensis	Flax-Leaf Fleabane	G	Jun-Aug			
	* Conyza canadensis	Horseweed	G	May-Oct			
S	Coreopsis maritima	San Diego Sea Dahlia	S	Mar-May	CEQA	2	2-2-1
. S	Corethrogyne filaginifolia var. linifolia	Del Mar Sand Aster	Š	Jul-Sep	PT/none	IB	3-2-3
	(J: Lessingia filaginifolia ssp. filaginifolia)			P		17.71	

* Cotula coronopifolia	Brass Buttons	w	Mar-Dec		
*** Cynara cardunculus	Artichoke Thistle, Cardoon	G,S,W	May-Jul		
Encelia californica	California Encelia	S	Feb-Jun		
Encelia farinosa	Brittlebush	D	Mar-May		
at narrows? Ericameria arborescens	Parish's Goldenbush	С	Jul-Oct		
Ericameria palmeri ssp. pachylepis (Haplopappus palmeri ssp. pachylepsis)	8	S	Aug-Dec		
Erigeron foliosus var. foliosus	Fleabane	C,S	May-Jul		
Eriophyllum confertiflorum var. confertiflorum	Golden Yarrow	S	Apr-Aug		
* Filago gallica	Narrow-Leaf Filago	C,S	Apr-Jun		
Gnaphalium bicolor	Bicolor Cudwced	S	Jan-May		
Gnaphalium californicum	California Everlasting	S	Jan-Jul		
Gnaphalium canescens ssp. beneolens (Gnaphalium beneolens)	Fragrant Everlasting	S	Jul-Nov		
Gnaphalium canescens ssp. microcephalum (Gnaphalium microcephalum)	White Everlasting	S	Jul-Oct		
Gnaphalium palustre	Lowland Cudweed	S	May-Oct		
Gnaphalium stramineum (G. chilense)	Cotton-Batting Plant	S	Jun-Oct) A	
G. camporum var. bracteosa (Grindelia robusta)	Gumplant	G	Apr-Aug		
Gutierrezia californica (Gutierrezia bracteata)	California Matchweed	S	May-Oct		
Hazardia squarrosa var. grindelioides (Haplopappus squarrosa ssp. grindelioides)	Sawtooth Goldenbush	S	Jul-Oct		
* Hedypnois cretica	Crete Hedynois	G	Mar-May		
* Helianthus annuus ssp. lenticularis	Western Sunflower	w	Feb-Oct		
Hemizonia fasciculata	Fascicled Tarweed	G	May-Sep		
? Hemizonia paniculata	Tarweed	G	May-Nov		
Heterotheca grandiflora	Telegraph Weed	G	Jan-Dec		
Heterotheca sessiliflora ssp. sessiliflora (Chrysopsis villosa var. sessiliflora)		S	Mar-Jul		
Holocarpha virgata ssp. elongata	Graceful tarplant	G	Jul-Oct		
* Hypochaeris glabra	Smooth Cat's-Ear	G	Mar-Jun		
Isocoma menziesii var. mensiesii (Haplopappus venetus ssp. furfuraceua)		S,W	Apr-Nov		
Isocoma menziesii var. vernioides (Haplopappus venetus ssp. vernioides)	Coastal Goldenbush	S,W	Oct-Dec		
s Iva hayesiana	Poverty Weed, S.D. Marsh Elder	w	Apr-Sep	C2/none	2

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	* Lactuca serriola	Prickly Lettuce	G,W	May-Sep			
	Lasthenia califonica	Goldfields	S	Mar-May			
	Lessingia filaginifolia var. filaginifolia	000000	S	ividi ividy			
	(Corethrogyne filaginifolia varieties)		0				
	?? Microseris douglasii		G	Mar-May			
	Osmadenia tenella (Calycadenia tenella)	Rosinweed	G,S	May-Oct			
	Pentachaeta aurea (Chaetopappa aurea)	Golden Daisy	S	Apr-Jul			
	Picris echioides	Bristley Ox Tongue	w	Dec-Jun			
	Pluchea odorata (Pluchea purpurascens)	Marsh Fleabane	w	Jul-Jan			
	Porophyllum gracile		S	Oct-Jun			
	Psilocarphus brevissimus var. brevissimus	Woolly Marbles	VP	Apr-Jun			
	Rafinesquia californica	California Chicory	C,S	Apr-May			
	Senecio californicus	California Butterweed	S	Apr-Oct			
	*** Senecio mikaniodes	German Ivy	C,S,W	Dec-Apr			
	* Senecio vulgaris	Common Groundsel	G	Jan-May			
	* Silybum marianum	Milk Thistle	G	May-Jul			
	Solidago californica	California Goldenrod	C,0	May-Nov			
	* Sonchus asper ssp. asper	Spiny-Leaf Sow-Thistle	G	Jan-Dec			
	* Sonchus oleraceus	Common Sow-Thistle	G	Jan-Dec			
	Stephanomeria diegensis	San Dicgo Wrcath-Plant	G,S	Jul-Oct			
	Stephanomeria exigua ssp. exigua	Small Wreath-Plant	Ŵ	Apr-May			
	Stephanomeria virgata ssp. virgata	Virgate Wreath-Plant	G,S	Jul-Oct			
	Uropappus lindleyi (Microseris linearifolia)	Silver Puffs	G	Feb-May			
s	Viguiera laciniata	San Diego Sunflower	S	Feb-Jun	CEQA?	4	1-2-1
	Xanthium spinosum	Spiny Cocklebur	w	Jul-Oct	2		
Berberidaccae	Barberry Family						
	Berberis pinnata (Mahonia pinnata)	Shiny Leaf Mahonia	С	Mar-May			
	Mahonia species nova	Poway Mahonia	C	Feb-Apr			
Bignoniaceae	Bignonia Family						
Digitomaccac	* Catalpa bignonioides		R	Apr-Jun			
	Calapa orgnomoraes		ĸ	Abi-Juu			
Boraginaceae	Borage Family						
	Amsinckia menziesii var. intermedia	Rigid Fiddleneck, Rancher's Fiddleneck	G	Mar-Jun			0.82
	Amsinckia tessellata	Checker Fiddleneck	S	Mar-Jun			
-	Cryptantha intermedia	Nievitas	G,S	Mar-Jul			
scarch	Cryptantha sp						

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search	Heliotropium curvassavicum var. oculatum Plagiobothrys	Wild Heliotrope Popcorn Flower	W	Mar-Oct			
Brassicaceae	Mustard Family						
2010001000000	*** Brassica nigra	Black Mustard	G	Apr-Jul			
	*** Brassica rapa	Field Mustard	F	Jan-May			
	* Capsella bursa-pastoris	Shepard's purse	F	Jan-Dec			
	Cardamine californica var. californica	Milkmaids	S	Feb-May			
	Caulanthus heterophyllus var. heterophyllus	San Dicgo Jewel Flower	S	Mar-Apr			
	* Hirschfeldia incana (Brassica geniculata)	Short-pod Mustard	G	May-Oct			
	Lepidium virginicum var. robinsonii	Robinson's Peppergrass	S	Jan-Apr			
	* Lobularia maritima	Sweet Alyssum	G	Jan-Dec			
	* Raphanus sativus	Wild Radish	G	Feb-Jul			
	* Rorippa nasturtium aquaticum (Nasturtium officinale)	Watercress	w	Mar-Nov			
	Sibara virginica	Virginia Rockcress	VP	Mar-May			
	* Sisymbrium altissimum	Tumble- Mustard	G	May-Jun			
	* Sisymbrium irio	London Rocket	F	Feb-Oct			
	* Sisymbrium orientale	Hare's-car Cabbage	F	May-Apr			
Cactaceac	Cactus Family						
S	Ferocactus viridescens	Coast Barrel Cactus, SD Barrel Cactus	C,S	May-Jun	C2/none	2	1-3-1
	Mammillaria dioica	Fish-hook Cactus	S	Feb-Apr			
	* Opuntia ficus-indica	Indian Fig		May-Jun			
	Opuntia littoralis	Coast Prickly Pear	S	May-Jun			
	Opuntia occidentalis	Western Prickly Pear	S	May-Jun			
	Opuntia oricola		G,S	Apr-Jun			
	Opuntia parryi	Cane Cholla, Snake Cholla	C,S	May-Jun			
	Opuntia prolifera	Coast Cholla	С	Apr-Jun			
Callitrichaceae	Water-Starwort Family						
	Callitriche marginata (C. mlongipedunculata)	Long Stalk Water Starwort	VP	Feb-May			
Campanulacca	Bellflower Family						
12570	Downingia cuspidata	Toothed Downingia	VP	Mar-Jun			
	Lobelia dunnii var. serrata	Rothrock Lobelia	С	Jul-Oct			

Capparaceae	Caper Family			
••	Isomeris arborea	Bladderpod	S	Jan-Dec
Caprifoliaceae	Honeysuckle Family			
	Lonicera subspicata var. denudata	San Diego Honeysuckle	С	Apr-Jun
	Sambucus mexicana	Mexican Elderberry	С	Mar-Scp
Caryophyllaceae	Pink Family			
	Cardionema ramosissimum	Tread Lightly	S	Mar-Aug
	* Cerastium glomeratum	Chickweed	W	Fcb-May
	* Silene gallica	Common Catchfly, Windmill Pink	F	Feb-Jun
	Silene laciniata ssp. major	Southern Pink	C,S	May-Jul
	* Spergula arvensis ssp. arvensis	Stickwort, Starwort	F	Jan-Dec
Chenopodiaceae	Goosefoot Family			
15	Atriplex canescens ssp. canescens	Four-Wing Saltbush	G	Jun-Aug
	Atriplex lentiformis ssp. lentiformis	Quail Saltbush	S	Jul-Nov
	Atriplex leucophylla	Sea Scale	W	Apr-Oct
	Atriplex triangularis	Halberd-Leaf Saltbush	W	Jun-Nov
	* Atriplex semibaccata	Australian Saltbush	all	Apr-Dec
	* Chenopodium ambrosioides	Mexican Tea, Epazote	W	Jun-Dcc
	Chenopodium californicum	California Goosefoot	all	Mar-Jun
	* Chenopodium murale	Nettle-Leaf Goosefoot	F	Jan-Dec
	Salicornia sp	Pickleweed	W	July-Nov
-	*** Salsola tragus	Russian Thistle, Tumbleweed	w	May-Nov
Cistaceac	Rock Rose Family			
	* Cistus creticus (C. villosus)	Pink Rock Rose	F,S	Mar-Jun
	Helianthemum scoparium	Sun Rose	C,S	Feb-Aug
Convolvulaceae	Morning Glory Family			
	Calystegia macrostegia ssp. tenuifolia	Natrow-leaf Morning Glory	S	Feb-May
	* Convolvulus arvensis	Bindweed	F	May-Oct
S	Dichondra occidentalis	Western Ponyfoot, Western Dichondra	C,S	Mar-May C3c/nonc 4
	* Ipomoea cairica	Mile-a-Minute plant	R	Aug
Crassulaceae	Stonecrop Family		-	
1993) - 1993) - 1993) - 1993) - 1993) 1993) - 1993) - 1993) - 1993) - 1993) - 1993) 1993) - 1993) - 1993) - 1993) - 1993) - 1993) - 1993) - 1993) - 1993) - 1993) - 1993) - 1993) - 1993) - 1993) -	Crassula connata	Dwarf Stonecrop, Pygmyweed		Feb-May

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S	Dudleya blochmaniae ssp. brevifolia (Dudleya brevifolia) (Carnel M+n)	Del Mar Hasscanthus, Short-leaved Dudlcya	C,S	Apr-Jun	FE/CE	lB	3-3-3
	Dudleya edulis	Ladies Fingers	S	May-Jun			
	Dudleya lanceolata	Coastal Dudleya	C,S	May-Jul			
	Dudleya pulverulenta	Chalk Lettuce	S	May-Jul			
Cucurbitaceae	Gourd Family						
cuouronaceae	Cucurbita foetidissima	Calabazilla, Stinking Gourd	G,S	Jul-Oct			
	Marah macrocarpus	Wild Cucumber, Manroot	C,S	Jan-Apr			
	A REPORT OF THE PROPERTY AND A DATA STREET	Understand in Standards address to 🗶 State Analy Analysis	22.4.23	analasin to 1 4 573			
Cuscutaceac	Dodder Family		-				
? .	Cuscuta californica	Dodder, Witches Hair	S				
Dipsacaceae	Teasel Family						
	* Dipsacus sativus	Common Teasel	G,W	May-Jul			
Elatinaceae	Waterwort Family	Vada Egnas	VP	Man Main			
	Elatine brachysperma	Yerba Fango	VP	Mar-May			
Ericaceae	Heath Family						
S	Arctostaphylos glandulosa ssp.crassifolia	Del Mar Manzanita	С	Dec-Apr	PE/nonc	1B	3-3-2
?	Arctostaphylos glandulosa ssp.			an //ac	1244010100		
S	Comarostaphylis diversifolia ssp. diversifolia	Summer Holly	С		C2/nonc	IB	2-2-2
	Xylococcus bicolor	Mission Manzanita	С	Dec-Feb			
Euphorbiaceac.	Spurge Family						
	Chamaesyce polycarpa	Desert Sandmat		Jan-Dec			
	Croton californicus		C,S	Mar-Oct			
	Eremocarpus setigerus	Dovewced	G	May-Oct			
•	Euphorbia albomarginata	Rattlesnake Weed		Apr-Nov			
	(Chaemaesyce albomarginata)						
	*** Ricinus communis	Castor Bean	W	Jan-Dec			
Fabaceac	Pca Family						
	* Acacia non-native west of the falls	and the second sec	w				
	* Acacia retinodes	Freeway Acacia	S,W	Jan-Dec			
	Amorpha fruticosa	False Indigo	w	May-Jul			
	Astragalus didymocarpus var. didymocarpus	White Dwarf Locoweed	S	Feb-May			



	Astragulus trichopodus ssp. lonchus	Locoweed	.*	С	Fcb-Jun			
	Lotus purshianus	Spanish Clover		all	May-Oct			
	Lotus salsuginosus var. salsuginosus	Alkili Lotus		C,S	Mar-May			
	Lotus scoparius var. scoparius	Decrweed		C,S	Mar-Aug			
	Lupinus bicolor ssp. microphyllus	Lupine		G	Apr-Jun			
	Lupinus hirsutissimus	Stinging Lupine		C,S	Feb-May			
	Lupinus latifolius var. columbianus			W	May-Jun			
	Lupinus longifolius	Pauma Lupine			Feb-Jun			
	Lupinus microcarpus var. densifolius	Chick Lupine						
	Lupinus microcarpus var. microcarpus	Chick Lupine		C,G,S	Apr-Jun			
	(Lupinus densiflorus ssp. austrocollium)	-		1810 X.2	•			
	Lupinus succulentus	Arroyo Lupine		G	Jan-Apr			
	* Medicago polymorpha	California Bur Clover		G	Feb-Apr			
	*** Melilotus alba (Melilotus albus)	White Sweet Clover		ali	Apr-Oct			
	* Melilotus indica (Melilotus indicus)	Indian Sweet Clover		all	Apr-Oct			
	Pickeringia montana	Canyon Pca		С	May-Aug			
	Prosopis glandulosa var. torreyana	Honey Mesquite		F	Mar-Jun			
	Vicia sp.	Vetch		G	Apr-Jun			
Баласала	Oak Family							
Fagaccae	Quercus agrifolia	Coast Live Oak		́ О	Mar-Apr			
	Quercus agrijona Quercus berberidifolia	Scrub Oak		c	Apr-Jul			
	Quercus ververaijona Quercus chrysolepis	Canyon Live Oak		C,O	Apr-May			
	Quercus chrysolepis Quercus dumosa	Nuttall's Scrub Oak		C,O	Apr-Jul	C2/none	IB	2-3-2
s s	Quercus aumosa Quercus engelmannii	Engelmann Oak		ŏ	Apr-May	CEQA?	4	1-2-2
8	Quercus engennanna	Engermann Oak		U	Api-way	CEQA	7	1-2-2
Frankeniaceae	Frankenia Family							
	Frankenia salina (F. grandiflora)	Alkali Heath		W	Jun-Oct			
Gentianaceae	Gentian Family							
	Centaurium venustum	Canchalagua	•	G	Mar-Jul			
c								
Geraniaceae	Geranium Family	Laws Dash Pilana		a	N/			
	*** Erodium botrys	Long Beak Filarce		G	Mar-May			
	* Erodium cicutarium	Red Stem Filaree		G	Feb-May			
	* Erodium moschatum	White Stem Filaree		G	Feb-May			
2	Geranium carolinianum	Carolina Geranium		G,C	Fcb-Apr			

 $\hat{\mathbf{y}}_{1}$

PENPLAN, V6S

Grossulariaceae	Gooseberry Family			2			
	Ribes aureum var. gracillimum	Golden Currant	0	Jan-Apr			
	Ribes indecorum	Winter Currant	Ċ	Dec-Mar			
	Ribes speciosum	Fuchsia-flowered Gooseberry	0	Feb-Jun			
	(b) an observation of the second sec second second sec						
Hamamelidaceae							
	* Liquidambar sp.	Sweetgum	R				
Hydrophyllaceae	Waterleaf Family	Υ.					
	Emmenanthe penduliflora	Whispering Bells					
	Eriodictyon crassifolium	Yerba Santa	С	Apr-Jun			
	Eucrypta chrysanthemifolia	Eucrypta	С	Mar-Apr			
	Phacelia cicutaria var. hispida	Catepillar Phacelia	C,G,O	Mar-May			
	Phacelia grandiflora	Big Flowered Phacelia	C,O,S	Feb-Jun			
	Phacelia parryi	Parry's Phacelia	C,S	Mar-May			
	Phacelia viscida	Sticky Phacelia	C,O	Mar-May			
	Pholistoma auritum var. auritum	Fiesta Flower	C,O	Mar-May			
Juglandaceae	Walnut Family						
0	Juglans californica	CA Black Walnut	R	Apr-May			
Lamiaceac	Mint Family						
S	Acanthomintha ilicifolia	San Dicgo Thornmint	C,G,S	Apr-May	C1/CE	1B	2-3-2
	* Marrubium vulgare	Horchound	G	Mar-Aug			
S	Monardella linoides ssp. viminea	Poway Mint	w	Jun-Oct	C2/CE	1 B	2-3-2
S	Pogogyne abramsii	San Diego Mesa Mint	VP	Apr-Jun	FE/CE	18	2-3-3
	Salvia apiana	White Sage	C,O	Apr-Jun			
	Salvia columbariae	Chia	С	Apr-May			
	Salvia leucophylla	Purple Sage	S	May-Jul			
	Salvia mellifera	Black Sage	C,S	Mar-Jun			
	Scutellaria tuberosa	Danny's Skullcap	C,O	Mar-May			
	Stachys ajufoides var. rigida	Hedge Nettle	O,W	Mar-May			
	(S. rigida ssp. quercetorum)						
	Trichostema lanceolatum	Vinegar weed	C,S	Mar-Jun			
Malvaceae	Mallow Family						
¥.	Lavatera assurgentiflora	Malva Rose	G,S	Mar-Nov			
	Malacothamnus fasciculatus var. fasciculatus	Mcsa Bushmallow	C,S	Apr-Oct			

...
	* Malva parviflora Sidalcea malvaeflora ssp. sparsifolia	Checseweed Checkerbloom	G G,S	Jun-Dec Mar-Jul
Myoporaceae	Myoporum Family			
	* Myoporum laetum		R	Jan-Aug
Myrtaceae	Myrtle Family			
*	Callistemon citrinus	Bottlebrush	w	
	*** Eucalyptus camaldulensis	Murray River Red Gum	W	Dcc-May
	*** Eucalyptus globulus	Blue Gum	W	Dec-May
Nyctaginaceae	Four O'Clock Family			
	Mirabilis califonica	Wishbone Plant	S	Mar-May
Oleoceae	Olive Family			
*	Fraxinus sp.			
	*** Olea europaea	Mission Olive	S,W	Mar-Apr
Onagraceae	Evening Primrose Family			
	Camissonia bistorta	Southern Suncup	G,S	Mar-Jun
	Camissonia strigulosa		G,S,W	May-Jun
	Clarkia purpurea ssp. quadrivuinera	Canyon Godetia, Four-spot	G,S	Apr-Jul
	Clarkia unguiculata	Elegant Clarkia	C,G	May-Jun
	Epilobium adenocaulon or ciliatum	Willow-Herb	R	Jul-Sep
	Epilobium canum (Zauschneria culifornica)	Zauschneria, Ca Fuschia	C,S	Aug-Oct
	Oenothera elata ssp. hirutissima	Great Marsh Evening Primrose	• W	Jun-Sep
	(Oenothera hookeri)	Hooker's Evening Primrose		•
Ostersterre	Deserve David Family	ŝ		
Orobanchaceae	Broom-Rape Family ?? Orobanche californica ssp. feudgei	Sagebrush Broom-rape	C,S	May-Jul
	a orobanche canfornica ssp. jeuagei	Sageorusii Droom-rape	0,5	Iviay-Jui
Oxalidaceae	Oxalis Family			
	Oxalis albicans ssp. californica	CA Woodland Sorrel		Mar-May
	Oxalis albicans ssp. pilosa	Wood Sorrel	C,S	Mar-May
	* Oxalis pes-caprae	Bermuda Buttercup	w	Nov-Mar
Paeoniaceae	Peony Family			
	Paeonia californica	California Peony	0	Jan-Mar

Papaveraceae	Poppy Family Eschscholzia californica Papaver californicum Platystemon californicus var. californicus	California Poppy Firc Poppy Cream Cups	G.S C,O G,S	Feb-Sep Apr-May Feb-Jul			
Pittosporaceae	Pittosporum Family Pittosporum undulatum	Mock Orange	R	Jan-Mar			
Plantaginaceae	Plantain Family * Plantago coronopus Plantago erecta * Plantago lanceolata * Plantago major	Cut-leaf Plantain Dot-seed Plantain English Plantain Common Plantain	S,W C,G,S F,G,W	Apr-May Mar-May Apr-Aug Apr-Sep			
Platanaceae	Sycamore Family Platanus racemosa	Western Sycamore	w	Feb-Apr			
Plumbaginaccac	Leadwort Family Limonium californicum	Sea Lavendar, Western Marsh Rosemary	w	Jul-Dec			
Polemoniaceae s	Phlox Family Eriastrum filifolium Leptodactylon californicum ssp. glandulosum Linanthus dianthiflorus Navarretia fossalis Navarretia hamata	Thread-leaf Woolly-Star Prickly Phlox Ground Pink Prostrate Navarretia Skunkweed	C,S C S VP S	Apr-Jun Apr Feb-Apr Apr-Jun	C1/none	IB	2-3-2
Polygonaceae	Buckwheat Family Chorizanthe fimbriata var. fimbriata Chorizanthe polygonoides var. longispina	Fringed Spineflower Long-spined Spineflower	S C,G,S	Apr-Jun Apr-Jul	C2/none	IB	2-2-2
S	Chorizanine polygonolaes var. longispina Chorizanthe staticoides Eriogonum elongatum var. elongatum Eriogonum fasciculatum ssp. fasciculatum Eriogonium gracile var. gracile * Polygonum arenastrum Pterostegia drymarioides * Rumex conglomeratus	Turkish Rugging Long-stemmed Buckwheat Flat-top Buckwheat Yard Knotweed Granny's Hairnet Whorled Dock	C,0,5 S C,S G,S C,O,S G C,S W	Apr-Jul Apr-Jul Aug-Nov Mar-Oct Jul-Oct May-Nov Mar-May Apr-Oct	CZMONC	ID	2-2-2

	* Rumex crispus Rumex salicifolius var. salicifolius	Culry Dock Willow-leaf Dock	w w	Jan-Dec May-Sep		121	
Portulacaceae	Purslanc Family Calandrinia cililata Claytonia perfoliata ssp. perfoliata	Red Maids Common Miner's Lettuce	0	Feb-Apr Fcb-May			
Primulaceae	Primrose Family						
	* Anagallis arvensis	Scarlet Pimpernel	G,S	Mar-Jul			
in canyon?	Centunculus minimus (Anagallis minima)	Common Chaffweed	VP	Apr-Jul			
	Dodecatheon clevelandii ssp. clevelandii	Padre's Shooting Star	S	Jan-Apr			
121	Samolus parviflorus	Water Pimpernel	W	Jun-Aug			
Ranunculaceae	Buttercup Family						
	Clematis pauciflora	Virgin's Bower	S	Jan-Apr			
	Delphinium cardinale	Scarlet Larkspur	S	Jun-Aug			
	Delphinium parryi var. parryi	Parry's Larkspur	S	Mar-Apr			
S	Myosurus minimus	Little Mousetail	VP	Apr-May	C2/none	3	2-3-2
	Ranunculus californicus	California Buttercup	S	Fcb-May			
	Thalictrum fendleri var. polycarpum (Thalictrum polycarpum)	Meadow Rue	O,W	Jul-Aug			
Rhamnaceac	Buckthorn Family			22			
S	Adolphia californica	California Adolphia	С	Dec-Apr	CEQA	2	1-2-1
0	Ceanothus cuneatus	Cumoran Processing	č	200p.	0.24.1	~	
*	Ceanothus tomentosus		Č	Mar-May			
S	Ceanothus verrucosus	Warty Stemmed Ceanothus	č	Jan-Apr	C2/nonc	2	1-2-1
-	Rhamnus crocea	Redberry	C,O.S	Mar-Apr			
Rosaccae	Rose Family						
	Adenostoma fasciculatum	Common Chamise	С	May-Jun			
	Aphanes occidentalis (Alchemilla occidentalis)		С	Mar-Jun			
	Cercocarpus minutiflorus	Coastal Mountain Mahogany	С	Mar-May			
	Heteromeles arbutifolia	Toyon	C,S	Jun-Jul			
	* Malus sp	Apple	Ġ				
	Potentilla glandulosa ssp. glandulosa	Sticky Cinquefoil	0	May-Jul			
	* Prunus armeniaca	Apricot	G				
	Prunus ilicifolia ssp. ilicifolia	Holly Leaf Cherry	С	Apr-May			

	* Pyrus sp Rosa californica Rubus ursinus	Pcar Wild Rose, California Rose California Blackberry	G O,W G,W	May-Aug Mar-Jul
Rubiaceae	Madder Family Galium angustifolium ssp. angustifolium * Galium aparine Galium nuttallii ssp. nuttallii	Narrow-leaf Bedstraw Common Bedstraw Nuttall's Bedstraw	S O C,S	Apr-Jul Mar-Jul Mar-Jul
Rutaceae	Rue Family Cneoridium dumosum * Osage sp	Coast Spice Bush, Bushrue Orange, Osage	C G	Nov-Mar
Salicaceae	Willow Family Populus fremontii Salix exigua (S.hindsiana) Salix gooddingii Salix laevigata var. laevigata Salix lasiolepsis var. lasiolepis	Western Cottonwood Sandbar Willow, Narrow-leaved Willow Black Willow Red Willow Arroyo Willow	W W W W	Mar-Apr Mar-May Mar-Apr Mar-May Fcb-Apr
Sauarurarceae	Lizard's-Tail Family Anemopsis californica	Yerba Mansa	w	Mar-Sep
Saxifragaceae	Saxifrage Family Jepsonia parryi Lithophragma affine	Mesa Saxifrage, Coast Jepsonia Woodland Star	C,S	Oct-Dec Mar-Jun
Scrophulariaceae	Figwort Family Antirrhinum coulterianum Antirrhinum kelloggii Antirrhinum nuttallianum Castilleja affinis ssp. affinis Castilleja exserta ssp. exserta (Orthocarpus purpurascens) Castilleja foliolosa Collinsia heterophylla Cordylanthus rigidus ssp. setigerus (C. filifa Keckiella cordifolia (Penstemon cordifolius)		G C,S S G G C C C	Apr-Jul Mar-May Mar-Jul Mar-May Mar-May Mar-Jun Mar-Jun May-Aug Mar-Aug

		Climbing Bush Penstemon		•
	Linaria canadensis var. texana	Large Blue Toadflax	G	Mar-May
	Mimulus aurantiacus	SD Monkeyflower	C,O,S	Mar-Jul
	(Diplacus aurantiacus and D. puniceous)			
	Mimulus brevipes	Slope Semiphore	W	Apr-Jun
	Mimulus cardinalis	Scarlet Monkeyflower	O,S	Jun-Sep
	Mimulus guttatus	Seep Monkeyflower	W	Mar-Aug
in burn arca?	???? Mimulus johnstonii			May-Jul
	Pedicularis densiflora	Indian Warrior	С	Jan-Apr
	Penstemon centranthifolius	Scarlet Bugler	С	Apr-Jul
	Penstemon spectabilis var. spectabilis	Violet Bcard-Tongue,	C,S	Apr-Jun
	Scrophularia californica ssp. floribunda	California Bce Plant	S	Mar-May
	* Veronica anagallis-aquatica	Water Speedwell	W	May-Scp
Simaroubaceac	Quassia Family			
	*** Ailanthus altissima	Tree of Heaven	w	Jun
Simmondsiaceae	Jojoba Family			
	Simmondisia chinensis	Jojoba	С	Feb-May
Solanaceae	Nightshade Family		a	
	* Datura stramonium	Jimsonweed	G	
	Datura wrightii	Western Jimsonweed	G,S	Apr-Oct
	Lycium californicum	California Boxthorn		Mar-Jul
in Lopez???	Nicotiana clevelandii	Cleveland's Tobacco	W	Mar-Jun
	*** Nicotiana glauca	Tree Tobacco	w	Mar-Oct
	Solanum americanum	White Nightshade	S	Apr-Nov
	Solanum douglasii	Douglas' Nightshade	O,S	Jan-Dec
	Solanum elaeagnifolium	Silverleaf Nettle	G	May-Scp
	* Solanum nigrum	Black Nightshade	G	Mar-Oct
	Solanum parishii	Parish's Nightshade	S	Mar-May
	* Solanum sarrachoides	Hairy Nightshade		May-Oct
	Solanum umbelliferum var. glabrescens	Blue Witch	S	Feb-Jun
	Solanum xanti	Chaparral Nightshade	С	Feb-Jun
Tamaricaceae	Tamarisk Family			
	*** Tamarix chinensis, parviflora, or ramosissima	Salt Cedar	W	Mar-Apr

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	Tropaeolaceae	Tropaeolum Gamily			
		*** Tropaeolum majus	Garden Nasturtium	O,W	Mar-Aug
	Ulmaceae	Ulmmus sp.	Elm	w	
	Urticaceae	Nettle Family			
		Urtica dioica ssp. holosericea (U. holosericea)	Hoary Nettle	W	Jun-Sep
	Verbenaceae	Verbena Family			
		Verbena bracteata	Bract Vervain	W	May-Oct
		Verbena lasiostachys	Western Verbain	w	May-Scp
	Violaceae	Violet Family			
		Viola pedunculata	Yellow Johnny Jump-Ups	O,S	Feb-Apr
	Viscaceae	Mistletoc Family			
		Phoradendrom macrophyllum	Mistletoe	O,W	Dec-May
		(P. tomentosom ssp. macrophyllum)	Mishelde	0,11	Dectivitay
문환	Zygophyllaceae	Caltrop Family			
		Tribulus terrestris	Puncture Vine	F	Apr-Oct
	MONOCOTYLE	DONS			
	Arecaceae	Palm Family			
		*** Phoenix canariensis	Canary Island Date Palm	w	May-Oct
		*** Washingtonia robusta	Fan Palm	W	,
	Cyperaceae	Sedge Family			
	Cypciaccae	Carex lanuginosa	Woolly Sedge	w	Mar-Jun
		Carex subfusca	Rusty Sedge	w	May-Jul
		Carex subjusca Carex triquetra	Triangular-Fruit Sedge	C,S	Apr-Jun
		Cyperus eragrostis	Tall Flatsedge	w W	Mar-Jun
		* Cyperus esculentus	Yellow Nutsedge	W	Jun-Oct
e.				w	
		* Cyperus involucratus (C. alternifolius) Cyperus niger (Cyperus niger var. capitatus)	African Umbrella-plant Brown Umbrellasedge	w	Jul-Sep Jul-Nov
		Cyperus niger (Cyperus niger var. capitatus) Cyperus odoratus	Fragrant Flatsedge	w	Jul-Nov
		Eleocharis macrostachya	-	W	Apr-Nov
		Eleocharis macrosiacnya Eleocharis montevidensis	Pale Spike Sedge	w	May-Sep
		Lieochuris monievidensis	Slender Creeping Spike Rush	W	way-sep

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	Scirpus acutus	Tule	w	May-Aug			
	Scirpus robustus	Bull Tulc	w	Apr-Aug			
Iridaceae	Iris Family						
??	* Iris pseudacorus yellow at west end ripar	lan	W	Apr-May			
	Sisyrinchium bellum	Blue-cyed Grass	G,S	Mar-May			
						•	
Juncaceae	Juncus Family						
S	Juncus acutus var. sphaerocarpus	Southwestern Spiny Rush	w	May-Jun	CEQA?	4	1-2-1
	(J.: acutus ssp. leopoldii)						
18	Juncus bufonius	Toad Rush	W	Apr-Sep			
	Juncus mexicanus	Mexican Rush	w	May-Aug			
	Juncus rugulosus	Wrinkled Rush	w	Apr-Jul			
Liliaceae	Lily Family						
Linaccae	* Agave americana	American Agave	F,G				
•	Agave shawii	Coastal Agave, Shaw's Agave	s s	Sep-May	C2/none	2	3-3-1
\$	Allium praecox	Early Onion	C	Mar-Apr	C2/Hone	2	5-5-1
	Bloomeria crocea ssp. crocea	Common Golden Stars	c	Apt-Jun			
in canyon? s	Brodiaea filifolia	Thread-Leaf Brodiaca	G,VP	Мау	CI/CE	IB	3-3-3
in canyon? s	Brodiaea jolonensis	Mesa Brodiaca	G	Apr-Jun	CITCL	10	
s	Brodiaea orcuttii	Orcutt's Brodiaea	· VP	Apr-Jul	C2/nonc	IB	1-3-2
3	Calochortus splendens	Splendid Mariposa Lily	S	Apr-Jun	CZINONC	10	1 2 2
	Calochortus weedii	Weed's Mariposa Lily	s	May-Jul			
	Chlorogalum parviflorum	Small Flowered Soap Plant	s	May-Jun			
	Dichelostemma capitatum (D.pulchellum)	Blue Dicks, Wild Hyacinth	C,G,O,S	Mar-May			
5	Muilla clevelandii	San Diego Goldenstar	C,S,VP	Mar-May	C2/none	IB	2-2-2
3	Yucca schidigera	Mojave Yucca	C	Apr-May	02/110110		
	Yucca whipplei	Our Lord's Candle	Š	Apr-May			
×.	Zigadenus fremontii var. fremontii	Fremont's Camas, Star Lily	S	Mar-May			
	2.5.4.4.6.1.6.5. 6.1.6.1.1.7.5.6.1.6.1.	· · · · · · · · · · · · · · · · · · ·	1.2.3 1.2.3				
Lemnaccae	Duckweed Family	195					
	Lemna minuscuta (L. minima)	Duckweed	w	Mar-Scp			
Orchidaceae	Orchid Family						
Stomatout	Piperia unalascensis (Habenaria unalascen	sis) Slenderspire Piperia	O,W	Mar-Jul			

Poaceae

Grass Family

	Achnatherum coronatum (Stipa coronata)	Giant Stipa	C,S	Apr-Jun
	Agrostis exarata	Spike Redtop		
	*** Arundo donax	Giant Cane	W	Mar-Sep
	*** Avena barbata	Slender Oat	G	Mar-Jun
	* Avena fatua	Wild Oat	G	Apr-Jun
	Bothriochloa barbinodis	Beard Grass	S	Jun-Oct
	* Brachypodium distachyon	Purple Falsebrome	G,S	Apr-May
	* Bromus carinatus var. carinatus (B. marginatu.	s) Mountain Brome	G	Apr-Jul
	*** Bromus diandrus	Ripgut Grass	G	Apr-Jun
	* Bromus hordeaceus (B. mollis)	Soft Chess	G	Apr-Jul
	* Bromus madritensis ssp. rubens (B. rubens)	Red Brome	G	Mar-Jun
	* Cortaderia jubata	Pampas Grass	G,S,W	Jul-Oct
	*** Cortaderia selloana (C. dioica)	Pampas Grass	all	Sep-Dec
	* Cynodon datylon	Bermudagrass	G	Jun-Aug
	Deschampsia danthanioides	Annual Hairgrass	VP	Mar-Apr
	Distichlis spicata	Coastal Salt Grass	w	Jul-Oct
	Elymus glaucus ssp. glaucus		G,S	Jun-Aug
	* Gastridium ventricosum	Nitgrass	G	May-Scp
	* Hainardia cylindrica (Monerma cylindrica)	Thintail	W	May-Jul
	* Lamarckia aurea	Goldentop	G	Feb-May
	Leymus condensatus (Elymus condensatus)	Giant Wild Rye	С	Jun-Aug
	Leymus triticoides	Beardless Wild Ryc	W	Jun-Jul
	* Lolium multiflorum	Italian Ryegrass	F,G	Jun-Aug
	*** Lolium perenne	Perennial Ryegrass	F,G	May-Sep
	Muhlenbergia rigens	California Deergrass	O,W	Jun-Sep
	Nassella pulchra (Stipa pulchra)	Purple Needlegrass	C,G,S	Mar-May
	Nassella lepida (Stipa lepida)	Foothill Stipa	C,G,S	Mar-May
?? Pen & Lo	pez. Paspalum dialatum		R	May-Nov
2.5 Construction of the state of the state of the state	*** Pennisetum setaceum	African Fountain Grass	F	Jul-Oct
	Phalaris lemmonii	Lemmon's Canarygrass	VP	Apr-Jun
	* Phalaris minor	Littlesecd Canary Grass	F	Apr-Jul
	* Polypogon monspeliensis	Annual Beardgrass, Rabbitfoot Beardgrass	w	Apr-Aug
	Spartina foliosa	California Cordgrass	w	Jul-Nov
	Vulpia myuros var myuros (Festuca myuros)	Foxtail Fescue	W	Apr-Jun
Typhaceae	Cat-Tail Family			
	Typha domingensis	Southern Cattail	w	Jun-Jul
	Typha latifolia	Soft Flag, Broad-leaved Cattail	w	Jun-Jul

CALIFORNIA NATIVE PLANT SOCIETY LISTING AND SENSITIVITY CODE AND FEDERAL CANDIDATE SPECIES DESIGNATIONS

California Native Plant Society (1988)

- List 1 =Plants of highest priority
 - 1A = Plants presumed extinct in California
 - 1B = Plants rare and endangered in California and elsewhere
 - 2 = Plants rare and endangered in California, but common elsewhere
- List 3 = Plants about which we need more information
- List 4 = Plants of limited distribution (a watch list)

CNPS R-E-D Code

List

R (Rariry)

- 1 = Rare, but found in sufficient numbers and distributed widely enough that the potential for extinction or extirpation is low at this time.
- 2 = Occurrence confined to several populations or to one extended population.
- 3 = Occurrence limited to one or a few highly restricted populations, or present in such numbers that it is seldom reported.

E (Endangerment)

- 1 = Not endangered
- 2 = Endangered in a portion of its range
- 3 = Endangered throughout its range

D (Distribution)

- 1 = More or less widespread outside California
- 2 = Rare outside California
- 3 = Endemic to California

FEDERAL CANDIDATE (C1, C2) AND NON-CANDIDATE SPECIES DESIGNATIONS (C3)

- C1 = Enough data are on file to support the federal listing.
- C2 = Threat and/or distribution data are insufficient to support federal listing.
- C3a = Extinct
- C3b = Taxonomically invalid
- C3c = Too widespread and/or not threatened

Source: Smith and Berg (1988)

APPENDIX C

BIRD LIST

APPENDIX C

Common Name	Scientific Name	Seasonal Occurrence (1)	Relative Abundance (2)
Pied-billed grebe	Podilymbus podiceps	v	U
American white pelican	Pelecanus erythrorhynchos	v	R
American bittern	Botaurus lentiginosus	v	R
Least bittern	Ixobrychus exilis	v	R
Great blue heron	Ardea herodias	Р	С
Great egret	Casmerodius albus	Р	С
Snowy egret	Egretta thula	Р	С
Cattle egret	Bubulcus ibis	v	R
Green-backed heron	Butorides striatus	Р	U
Black-crowned night heron	Nycticorax nycticorax	v	U
Green-winged teal	Anas crecca	W	U
Mallard	Anas plotyrhynchos	P	С
Northern pintail	Anas acuta	w	U
Cinnamon Teal	Anas cyanoptera	w	U
Northern Shoveler	Anas clyptera	w	U
American wigeon	Anas americana	w	υ
Ruddy duck	Oxyura jamaicensis	w	υ
Turkey vulture	Cathartes aura	v	U
Osprey.	Pandion haliaetus	v	U
White-tailed kite	Elanus leucurus	Р	C,N
Northern harrier	Circus cyaneus	w	С
Sharp-shinned hawk	Accipter striatus	w	U
Cooper's hawk	Accipter cooperii	Р	C,N
Red-shouldered hawk	Buteo lineatus	Р	A,N
Red-tailed hawk	Buteo jamaicensis	Р	A,N
Ferruginous hawk	Buteo regalis	v	R
Rough-legged hawk	Buteo lagopus	v	R
Zone-tailed hawk	Buteo albonotatus	v	R

Common Name	Scientific Name	Seasonal Occurrence (1)	Relative Abundance ⁽²⁾
Golden Eagle	Aquila chysaetos	v	U
American kestrel	Falco sparverius	Р	A,N
Merlin	Falco columbarius	v	R
Peregrine falcon	Falco peregrinus	v	R
Prairie falcon	Falco mexicanus	v	R
California quail	Lophortyx californicus	P	C,N
Virgina rail	Rallus limicola	W	U
Sora	Porzana carolina	W	U
Common gallinule	Gallinula chloropus	v	R
American coot	Fulica americana	Р	С
Killdær	Charadrius vociferus	P	С
Black-necked stilt	Himantopus mexicanus	v	c ·
Greater yellowlegs	Tringa melanoleuca	W	U
Spotted sandpiper	Actitis macularia	w	U
Least sandpiper	Calidris minutilla	w	U
Short-billed dowitcher	Limnodromus griseus	W	R
Long-billed dowitcher	Limnodromus scolpaceus	W	U
Common snipe	Capella gallinago	w	U
Ring-billed gull	Larus delawarensis	v	U
California gull	Larus californicus	w	U
Western gull	Larus occidentalis	v	U
Caspian tern	Hydroprogne caspia	v	U
Forster's tern	Sterna forsteri	v	U
Rock dove	Columba livia	Р	С
Band-tailed pigeon	Columba fasciata	v	R
Mourning dove	Zenaida macroura	Р	A,N
Greater roadrunner	Geococcyx californianus	Р	C,N
Barn owl	Tyto alba	Р	U,N

Common Name	Scientific Name	Seasonal Occurrence (1)	Relative Abundance (2)
Western screech owl	Otus kennicottii	Р	U,N
Great horned owl	Bubo virginianus	Р	C,N
Lesser nighthawk	Chordeiles acutipennis	S	U
Common poorwill	Phalaenoptilus nuttallii	S	υ
Black swift	Cypseloides niger	v	R
Vaux's swift	Chaetura vauxi	М	U
White-throated swift	Aeronautes saxatalis	Р	U
Black-chinned hummingbird	Archilochus alexandri	S	C,N
Anna's hummingbird	Calypte anna	P	A,N
Costa's hummingbird	Calypte costae	P	C,N
Rufous hummingbird	Selasphorus rufus	М	U
Allen's hummingbird	Selasphorus sasin	М	υ
Belted kingfisher	Ceryle alcyon	Р	С
Acom woodpecker	Melanerpes formicivorus	Р	A,N
Red-naped sapsucker	Sphyrapicus nuchalis	w	υ
Red-breasted sapsucker	Sphyrapicus varius	W	U
Nuttall's woodpecker	Dendrocopos nuttallii	P	C,N
Downy woodpecker	Dendrocopos pubescens	P	C,N
Hairy woodpecker	Dendrocopos villosus	v	R
Northern flicker	Colaptes auratus	Р	C,N
Olive-sided flycatcher	Contopus borealis	М	U
Western wood-pewee	Contopus sordidulus	М	С
Willow flycatcher	Empidonax traillii	M	U
Hammond's flycatcher	Empidonax hammondii	M	U
Dusky flycatcher	Empidonax oberholseri	M	R
Gray flycatcher	Empidonax wrightii	v	U
Pacific-slope flycatcher	Empidonax difficilis	S	C,N
Black phoebe	Sayornis nigricans	Р	A,N

Common Name	Scientific Name	Seasonal Occurrence (1)	Relative Abundance ⁽²⁾
Eastern phoebe	Sayornis phoebe	v	R
Say's phoebe	Sayornis saya	w	С
Ash-throated flycatcher	Myiarchus cinerascens	S	C,N
Cassin's kingbird	Tyrannus vociferans	Р	C,N
Western kingbird	Tyrannus verticalis	S	C,N
Horned lark	Eremophila alpestris	Р	C,N
Tree swallow	Tachycineta bicolor	М	С
Violet-green swallow	Tachycineta thalassina	М	С
Northern rough-winged swallow	Stelgidopteryx ruficollis	М	A
Bank swallow	Riparia riparia	v	R
Cliff swallow	Hirundo pyrrhonota	S	A,N
Barn swallow	Hirundo rustica	М	С
Steller's jay	Cyanocitta stelleri	v	R
Scrub jay	Aphelocoma coerulescens	Р	A,N
American crow	Corvus brachyrhynchos	P	A,N
Common raven	Corvus corax	Р	A,N
Mountain chickadee	Parus gambeli	v	R
Plain titmouse	Parus inornatus	Р	C,N
Bushtit .	Psaltriparus minimus	Р	A,N
White-breasted nuthatch	Sitta carolinensis	v	U
Canyon wren	Catherpes mexicanus	v	R
Rock wren	Salpinctes obsoletus	w	U
Bewick's wren	Thryomanes bewickii	Р	A,N
House wren	Troglodytes aedon	Р	A,N
Marsh wren	Cistothorus palustris	w	С
Ruby-crowned kinglet	Regulus calendula	W	А
Blue-gray gnatcatcher	Polioptila caerulea	w	С
California gnatcatcher	Polioptila californica	Р	U,N

Common Name	Scientific Name	Seasonal Occurrence (1)	Relative Abundance (2)
Western bluebird	Sialia mexicana	w	С
Mountain bluebird	Sialia currucoides	w	R
Swainson's thrush	Catharus ustulata	М	U
Hermit thrush	Catharus guttata	w	С
American robin	Turdus migratorius	v	С
Wrentit	Chamaea fasciata	. Р	C,N
Northern mockingbird	Mimus polyglottos	P	A,N
California thrasher	Toxostoma redivivum	P	A,N
American pipit	Anthus rubescens	w	С
Cedar waxwing	Bombycilla cedrorum	W	С
Phainopepla	Phainopepla nitens	v	С
Loggerhead shrike	Lanius ludovicianus	Р	C,N .
European starling	Sturnus vulgaris	P	A,N
Hutton's vireo	Vireo huttoni	P	C,N
Least Bell's vireo	Vireo bellii pusillus	R	U
Solitary vireo	Vireo solitarius	v	U
Warbling vireo	Vireo gibrus	М	С
Orange-crowned warbler	Vermivora celata	Р	C.N
Nashville warbler	Vermivora ruficapilla	М	С
Yellow warbler	Dendroica petechia	S	С
Yellow-rumped warbler	Dendroica coronata	w	A
Black-throated gray warbler	Dendroica nigrescens	M	С
Townsend's warbler	Dendroica townsendi	M	С
Hermit warbler	Dendroica occidentalis	М	U
Prairie warbler	Dendroica discolor	v	R
American redstart	Setophaga ruticilla	v	R
Northern waterthrush	Seiurus noveboracensis	w	U
MacGillivray's warbler	Oporomis tolmiei	М	С

Bird Species List Los Peñasquitos Canyon Preserve

Common Name	Scientific Name	Seasonal Occurrence (1)	Relative Abundance ⁽²⁾
Common yellowthroat	Geothlypis trichas	P	A,N
Wilson's warbler	Wilsonia pusilla	M	С
Yellow-breasted chat	Icteria virens	S	C,N
Western tanager	Piranga ludoviciano	М	с
Rose-breasted grosbeak	Pheucticus ludovicianus	v	R
Black-headed grosbeak	Pheucticus melanocephalus	S	C,N
Blue grosbeak	Guiraca caerulea	S	C,N
Lazuli bunting	Passerina amoena	S	C,N
Rufous-sided towhee	Pipilo erythrophthalmus	Р	A,N
California towhee	Pipilo crisalis	Р	A,N
Rufous-crowned sparrow	Aimophila ruficeps	P	U,N
Chipping sparrow	Spizella passerina	w	U
Brewer's sparrow	Spizella breweri	v	R
Black-chinned sparrow	Spizella atrogularis	S	С
Vesper sparrow	Pooecetes gramineus	w	R
Lark sparrow	Chondestes grammacus	S	Ċ
Sage sparrow	Amphispiza belli	Р	U,N
Savannah sparrow	Passerculus sandwichensis	w	Α
Grasshopper sparrow	Ammodramus savannarum	S	C,N
Fox sparrow	Passerella iliaca	w	С
Song sparrow	Melospiza melodia	Р	A,N
Lincoln's sparrow	Melospiza lincolnii	W	С
White-crowned sparrow	Zonotrichia leucophrys	W	С
Golden-crowned sparrow	Zonotrichia atricapilla	w	А
Dark-eyed junco	Junco hyemalis	W	С
Red-winged blackbird	Agelaius phoeniceus	P	A,N
Tricolored blackbird	Agelaius tricolor	v	С
Western meadowlark	Sturnella neglecta	Р	A,N

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Bird Species List Los Peñasquitos Canyon Preserve

Common Name	Scientific Name	Seasonal Occurrence (1)	Relative Abundance ⁽²⁾
Yellow-headed blackbird	Xanthocephalus xanthocephalus	v	R
Brewer's blackbird	Euphagus cyanocephalus	Р	A,N
Brown-headed cowbird	Molothrus ater	Р	C,N
Hooded oriole	Icterus cucullatus	S	C,N
Northern oriole	Icterus galbula	S	A,N
Purple finch	Carpodacus purpureus	w	U
House finch	Carpodacus mexicanus	Р	A,N
Pine siskin	Spinus pinus	W	С
Lesser goldfinch	Carduelis psaltria	Р	C,N
Lawrence's goldfinch	Spinus lawrencei	М	υ
American goldfinch	Carduelis tristis	W	C,N
House sparrow	Passer domesticus	P	C,N

(1) P = Permanent, year- round resident M = Recurring, seasonal migrant S = Summer resident, March - September

W = Winter resident, September - March

V = Occasional visitor

(2) A = Abundant, easily found

C = Common, in suitable habitat

U = Uncommon

- R = Rare
- N = Nest within Preserve

APPENDIX D

NATIVE PLANTS RECOMMENDED FOR REVEGETATIVE PROJECTS IN PRESERVE

APPENDIX D

Native Plants Recommended for Restoration Projects in Preserve

The following list is provided as guidance in choosing plants for remedial or enhancement planting in the various botanic communities found in the Preserve. A proposed plant palette should include, but not be limited to, the plants listed here. Any revegetation plan will require approval by City and/or County Park and Recreation Department, as appropriate, prior to implementation. The use of endangered, threatened, or sensitive species is encouraged where appropriate.

Chaparral

Adenostoma fasciculatum Arctostaphylos glandula ssp. crassifolia, where appropriate Ceanothus tomentosus Ceanothus verrucosus, where appropriate Cercocarpus minutiflorus Comarostaphylis diversifolia ssp. diversifolia Heteromeles arbutifolia Lasthenia californica Leymus condensatus Lotus scoparius var. scoparius Malosma laurina Prunus ilicifolia ssp. ilicifolia Quercus berberidifolia, east of the waterfall, Peñasquitos Canyon. Ouercus dumosa, west of the waterfall, Peñasquitos Canvon. Rhammus crocea Rhus integrifolia Rhus ovata Ribes indecorum Xylococcus bicolor

Coastal Sage Scrub

Achillea millefolium var. californica or millefolium Adolphia californica Artemisia californica Encelia californica Eriogonum elongatum var. elongatum Eriogonum fasciculatum Isomeris arborea Malosma laurina, use sparingly as it can take over and dominate Mimulus aurantiacus Nassella lepida Opuntia littoralis Opuntia occidentalis Cneoridium dumosum Salvia mellifera Salvia apiana

Grassland, Native or Mixed

Achillea millefolium var. californica or millefolium Allium praecox Ambrosia psilostachya var. californica Bloomeria crocea ssp. crocea Calochortus splendens Dichelostemma capitatum Gnaphalium californicum Hemizonia fasciculata or paniculata Heterotheca grandiflora Isocoma menziesii var. menziesii Lupinus bicolor ssp. microphyllus Nassella pulcra Sambucus mexicana Sisyrinchium bellum

Oak Woodland

Artemisia palmeri Ribes speciosum Quercus agrifolia Quercus englemanii Rosa californica

Riparian/Riparian transitional

Amorpha fruticosa Anemopsis californica Artemisia douglasiana Artemisia palmeri Baccharis pilularis ssp. consanguinea Baccharis salicifolia Baccharis sarathroides Carex lanuginosa, subfusca, triquetra Eleocharis macrostachya, montevidensis Juncus sp. (J. acutus, J. bufonius, J. mexicanus, J. rugulosus) Oenothera elata ssp. hirutissima Platanus racemosa Pluchea odorata Populus fremontii Quercus agrifolia Rosa californica Salix exigua Salix gooddingii Salix hindsiana Salix laevigata Salix lapsiolepsis

Freshwater Marsh

Anemopsis californica Iva hayesiana Juncus acutus Scirpus ssp. Typha domingensis Typha latifolia

Brackish Marsh

Frankenia salina (grandiflora) Distichlis spicata Salicornia ssp.

Vernal Pools

Due to the sensitve and individual character of vernal pools, a detailed plan specific to the pools in question is required to be developed in consultation with City staff.

APPENDIX E

CITY OF SAN DIEGO BRUSH MANAGEMENT PROGRAM



LANDSCAPE TECHNICAL MANUAL

Approved by the Planning Commission on March 16, 1989 -Resolution No. 0480-PC

> Approved by City Council on October 3, 1989 Resolution No. 274506

Prepared by the City of San Diego Landscape Planning Section of The City of San Diego Planning Department

SECTIONSIX

BRUSH MANAGEMENT PROGRAM

6.1 INTRODUCTION

The California Public Resources Code establishes certain minimum requirements for brush clearance and also grants local governing agencies authority to promulgate and enforce additional fire code requirements as necessitated by local conditions. This management program is intended to implement the Uniform Fire Code Appendix II A in a manner which balances the need to reduce the fire hazard to an acceptable level of risk without creating or aggravating other hazards such as soil erosion and slope failures.

Compliance with the guidelines and requirements of the Brush Management Program shall not be construed as a guarantee against any damage or destruction caused by brush fires.

6.2 ALTERNATIVE COMPLIANCE

Deviations from the guidelines and requirements of this program may be considered in environmentally sensitive areas or areas adjacent to publicly owned open space and parklands, and must be approved by the Fire Chief, and the Planning Director. Approval by the Park and Recreation Director shall also be required for sensitive areas in public ownership. Refer to Appendix 'C' Municipal Code, Section 55.0888.0201, Subsection 16 (j) through (m) for alternative compliance criteria.

6.3 CALIFORNIA PUBLIC RESOURCES CODE

California Public Resources Code Section 4291 states as follows: "Any person who owns, leases, controls, operates, or maintains any building or structure in, upon, or adjoining any mountainous area or forest, brush, or grass covered lands or land covered with flammable material shall at all times do all of the following:

6.3-1 Maintain around and adjacent to such building or structure a fire break made by removing and clearing away, for a distance of not less than 30 feet on each side thereof or to the property line, whichever is nearer, all flammable vegetation or other combustible growth. This subsection does not apply to single specimens of trees, ornamental shrubbery, or other plants which are used as ground cover, provided that they do

- not form a means of rapidly transmitting fire from the native growth to any building or structure.
- 6.3-2 Remove that portion of any tree which extends within 10 feet of the outlet of any chimney or stovepipe.
- 6.3-3 Remove dead or dying wood from any tree adjacent to or overhanging any building.
- 6.3-4 Remove leaves, needles, or other dead vegetative growth from the roof of any structure.

6.4 FIRE HAZARD SEVERITY CLASSIFICATION

This brush management program is based upon the California Wildland Fire Danger Rating System which utilizes three criteria:

- Fuel loading (quantity of vegetation)
- Degree of slope
- Critical fire weather frequency

Fuel loading, slope and accessibility factors were evaluated by the San Diego Fire Department in order to identify high (A), moderate (B), and low (C) priority areas relative to the need for brush management. The frequency of critical fire weather in San Diego corresponds to the degree of coastal influence on temperature and humidity. Accordingly, the location of structures relative to the coast is a significant consideration in determining the fire hazard severity in San Diego. Table 4 establishes the fire hazard severity rating based upon the priority designation of an area and a structure's geographic location in the City (Figure 6).

- JFIREH	AZARD SEVERIT	Y CLASSIFICATION	
LOCATION OF	FIRE DEPARTMENT PRIORITY DESIGNATION		
STRUCTURE -	(A)	(B)	(0)
WEST OF I-5	MOD.	LOW	LOW
BETWEEN I-5 &805	HIGH	MOD.	LOW
EAST OF 805	HIGH	HIGH	MOD.

Table 4

The Brush Management section of the Fire Department can be contacted for information regarding the priority designation of areas within the City which have been mapped (see Appendix 'F' for phone number). Areas not currently surveyed will require a special survey request of the Fire Department.





6.5 BRUSH MANAGEMENT ZONES - DESCRIPTIONS

Fire safety in the landscape is achieved by reducing the readily flammable fuel adjacent to structures. This can be accomplished by pruning and thinning of native plants, revegetation with low fuel volume plantings or a combination of the two. Implementing brush management in an environmentally appropriate manner requires a gradual reduction in the amount and continuity of highly flammable fuel while maintaining plant coverage for soil protection. Such a transition will minimize the visual, biological and erosion impacts while reducing the risks of wildland fires.

The guidelines and requirements for creating a transition are organized into three brush management zones as described below. Table 5 establishes the required depth of each zone based upon the fire hazard severity class identified in Table 4. Together these zones provide for a transitional buffer of 50 to 110 feet between structures and undisturbed native vegetation, Section 6.6-2 provides alternatives for reducing Zone 1 through the use of fire-resistive architectural features and building design. 6.5-1 Zone 1 consists of plantings adjacent to structures. While these plantings typically consist of irrigated, ornamental non-native species, native plants may also be used. When used, native plants should be able to survive with no summer water.



Figure 7

6.5-2 **Zone 2** can be implemented in a variety of ways, the simplest being the selective thinning and pruning of the native plants. Long-term ongoing thinning cost may be reduced by the introduction of low growing fire retardant shrubs and groundcovers that are visually and horticulturally compatible with the native vegetation. Zone 2 plantings can also be established in disturbed areas that have been cleared of native vegetation by replanting appropriate native plant species in combination with appropriate non-native plant materials.

6.5-3 **Zone 3** is the first line of defense for fire safety and involves the selective thinning and pruning of native vegetation in a way that preserves the natural appearance of the area while reducing the fuel load.

ZONE	DESCRIPTION	FIRE HAZARD SEVERITY CLASS		
		LOW	MOD.	HICH
1	Ornamental landscapes or Brush Clearance	30' min.	35' min.	40' min.
2	Low volume plantings or selective thinning	20 [°] avg.	30' avg.	40' avg.
3	Selective thinnings	0' avg.	20' avg.	30' avg.
	TOTAL	50'	85'	110'

6.6 SETBACKS/ZONE REDUCTIONS

- 6.6-1 For all lots which have received approval on a tentative map subsequent to November 15, 1989 where structures will be located above slopes requiring brush management, with a slope gradient of 4:1 (25 percent) or steeper, and 50 feet in vertical height or higher the following will apply:
 - Structures shall be set back for a distance equal to the minimum required Zone 1 depth (Table 5). The setback be measured from those portions of a slope with gradients of 4:1 (25 percent) or steeper.
 - Notwithstanding any section to the contrary, for any lots which have received approval on a tentative map subsequent to November 15, 1989 the Zone 1 setback shall not be required as a condition of a subsequent permit when substantial conformance exists with previously approved discretionary permits.
- 6.6-2 For new structures adjacent to slopes requiring brush management, the depth of Zone 1 per Table 5 may be reduced by 10 feet if the following architectural features are provided:
 - The roof shall be of fire retardant construction. Wood shake or shingles, whether fire retardant treated or untreated, are not permitted.
 - Eaves and overhangs shall have an exterior surface as required for one hour fire resisitive walls for any portion of a structure located within the minimum Table 5 setback distance.
 - All eave vents shall be covered with wire screen not to exceed 1/4 inch mesh.
- 6.6-3 For new structures, the depth of Zone 3 shall be increased one-foot for every one-foot reduction of the building setback below the Zone 1 depth per Table 5.
- 6.6-4 For all lots which have received approval on a tentative map subsequent to November 15, 1989 (the effective date of this ordinance), all new structures shall be sited such that no

brush mangement will occur on publicly owned open space or parklands.

6.6-5 For new structures adjacent to any area requiring brush management, the depth of Zone 2 and then Zone 3 shall be decreased two feet for every one-foot increase of the zone depth above the minimum required Zone 1 (Table 5 or Section 6.6-2). The measurement is from slopes with a gradient of 4:1 (25%) or steeper and 50 feet in vertical height or higher. The minimum Zone 2 depth shall be measured from the edge of Zone 1 towards the native vegetation.

6.6-6 For new and existing structures, the criteria established under sections 6.7-4, 6.7-5 and 7.1 through 7.1-5 may be required by the Planning Director for slopes 4:1 (25 percent) or steeper in Zone 1 which are beyond the required minimum Table 5.

6.7 BRUSH MANAGEMENT REQUIREMENTS

The following requirements are in addition to those mandated by California Public Resources Code in Section 4291 (See Section 6.3). As provided for by the Uniform Fire Code, requirements as established by onsite inspections by the Fire Department may vary from the standards herein. The requirements to maintain effective vegetative clearance around structures in a fire hazardous area also apply to both persons owning or controlling such structures and to persons owning or controlling any land adjacent to structures.

6.7-1 BASIC REQUIREMENTS - All Zones

The requirements as stated in this section (6.7-1) are not superseded by the specific requirements identified in Sections 6.7-2 through 6.7-5.

6.7-1.01 Grubbing* for the purpose of brush management is prohibited in areas with slope gradient of 2:1 or steeper.
6.7-1.02 Grubbing of brush in areas with average slope gradients less than 2:1 requires a gradient permit.

.02 Grubbing of brush in areas with average slope gradients less than 2:1 requires a grading permit and approved revegetation plan. (City Code Div.4 Section 62.0403).

* Refer to Appendix 'C' for definition

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- 6.7-1.03 For all zones, plants shall not be cut below six inches.
- 6.7-1.04 New projects requiring a grading permit or discretionary review for the purposes of brush management are subject to environmental review.
- 6.7-1.05 Debris and trimmings produced by thinning and pruning shall be removed from the site or if left, shall be converted into mulch by a chipping machine and evenly dispersed non-irrigated to a maximum depth of 6 inches.
- 6.7-1.06 Trees and large tree form shrubs (e.g. Oaks, Sumac, Toyon) which are being retained shall be pruned to provide clearance of three times the height of the understory plant material or six feet whichever is higher (Figure 8). Dead and excessively twiggy growth shall also be removed.
- 6.7-1.07 All plants or plant groupings except cacti, succulents, trees and tree-form shrubs shall be separated by a distance three times the height of the tallest adjacent plants (Figure 8).



Figure 8

- 6.7-1.08 Maximum coverage and area limitations as stated herein shall not apply to indigenous native tree species (i.e., Pinus, Quercus, Platanus, Salix and Populus).
- 6.7-1. 09 For irrigated plantings in areas of less than 4:1 (25 percent) gradient:
 - Limit irrigated shrub masses over five feet in height to 30 percent of the planting area.
 - Develop landscapes consisting primarily of low-growing groundcovers (including lawn), vines and shrubs.
- 6.7-2 ZONE 1 REQUIREMENTS: Structures Requiring Building Permits after November 15, 1989 (the effective date of this ordinance).
 - 6.7-2.01 Provide and maintain a permanent irrigation system for all landscaped areas.

6.7-3 ZONE 1 REQUIREMENTS: All Structures

- 6.7-3.01 Do not use, and remove if necessary, highly flammable plant materials (see Appendix 'C', Plant Selection, Item #6).
- 6.7-3.02 Trees should not be located any closer to a structure than a distance equal to the tree's mature spread.
- 6.7-3.03 Maintain all plantings in a succulent condition.
- 6.7-3.04 Individual non-irrigated plant groupings over six inches in height may be retained provided they do not exceed 100 square feet in area and their combined coverage does not exceed 10 percent of the total Zone 1 area.
- 6.7-3.05 For irrigated plantings on slopes with a gradient of 4:1 (25 percent) or steeper:
 - New plantings shall have an average maximum mature height of 24 inches or less.

- 50 to 70 percent of the area shall be planted with deep rooting (i.e. over four feet in avg. depth), spreading vines and shrubs with low fuel volume and low to moderate fire retardant (Appendix 'C', Table 6).
- 30 to 50 percent of the area shall be planted with groundcovers with moderate to high fire retardance (Appendix 'C', Table 6).

6.7-4 ZONE 2 REQUIREMENTS: All Structures

- 6.7-4.01 Individual non-irrigated plant groupings over 18 inches in height may be retained provided they do not exceed 400 square feet in area and their combined coverage does not exceed 30 percent of the total Zone 2 area.
- 6.7-4.02 Except as noted in Section 6.7-1.06 and Section 6.7-4.01, shrubs in new plantings shall have an average maximum mature height of 24 inches or less.

6.7-4.03 Irrigated plantings on slopes with a gradient of 4:1 or steeper shall satisfy the following performance criteria:

- Spray heads (except micros) shall not be used on slopes above Zone 3. Overspray and runoff affecting Zone 3 shall be avoided.
- 50 to 70 percent of the area shall be planted with deep rooting (i.e. over four feet in avg. depth), spreading vines and shrubs with low fuel volume and low to moderate fire retardance (Appendix 'C', Table 6).
- 30 to 50 percent of the area shall be planted with groundcovers with moderate to high fire retardance (Appendix 'C', Table 6).

6.7-4.04

6.7-5.03

Except as noted in Section 6.7-4.01, new non-irrigated plantings in Zone 2 shall satisfy the following performance criteria:

Plants shall have a low growing spreading habit.

Plants shall be self regenerating, drought resistant and effective in erosion control and slope stabilization.

6.7-5 ZONE 3 REQUIREMENTS: All Structures

6.7-5.01 Individual non-irrigated plant groupings over 18 inches in height may be retained provided they do not exceed 650 square feet in area.

6.7-5.02 The combined coverage of individual nonirrigated plant groupings over 18 inches in height may vary from 40 percent immediately adjacent to Zone 2 to 60 percent at the outer limits of Zone 3.

Except as noted in Section 6.7-5.01 and Section 6.7-5.02, new plantings shall satisfy the following performance criteria:

- Plants shall have an average maximum mature height of 36 inches or less.
- Plants shall be effective in erosion control, slope stabilization and capable of self propagation without supplemental waterings.

Figures 9 thru 11 depict several typical applications of the Brush Management requirements.



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Brush Management on a Priority 'A' Slope West of I-5

Figure 11

Brush Management Program

APPENDIX "C"

BRUSH MANAGEMENT IMPLEMENTATION GUIDELINES

INTRODUCTION

The native chaparral is part of a resilient yet fragile ecosystem adapted to the local conditions of summer drought and frequent fires. Wherever development occurs in and adjacent to areas of native vegetation, a fire hazard exists. Brush and dense undergrowth ignite readily, burn with intense heat, and spread fire rapidly. While thinning and clearing native vegetation will not prevent brush fires; damage from fires can be limited by reducing the exposure of structures to flames; thereby, giving home owners and fire fighters a better chance of protecting the structures.

Inappropriate modifications to the native landscape, however, can create other equally serious hazards such as slope failures, soil erosion, increased flooding, loss of wildlife habitat and a diminished visual quality of our communities. For this reason, alternative site planning solutions, modifications to architectural design and appropriate building and plant materials should be considered part of any comprehensive Brush Management program.

BUILDING SETBACKS

An adequate setback between slopes with native vegetation and a structure is the single most effective way to protect structures from brush fires. Without adequate setbacks, homes are often lost because structures are directly exposed to heat and flames (Fig. 14). Homes on poles and cantilevered homes are particularly vulnerable in this respect. Providing increased setbacks for existing structures is rarely feasible but new construction can typically provide the setbacks as required in Section 6.6.


BUILDING DESIGN

Following adequate building setbacks, the next most effective method of increasing the fire safety of a home is in the design of a building. As with building setbacks, design features are most easily incorporated into new construction. However, remodels and renovations of existing structures should also include as many of the following design features as possible.

- Provide boxed eaves and reduced roof overhangs to minimize heat and flame entrapment against the house.
- Under-eaves, vents should be located near the roof line rather than the wall to minimize heat entrapment of sparks near the wall.
- Exterior attic and underfloor vents should not face potential fire corridors, and should be covered with wire screen (not to exceed 1/4 inch mesh).
- Avoid large windows facing possible fire corridors.
- Roofs should be slanted to deflect convection heat.
- A deck with exterior materials of at least one hour fire-resistant rating (such as wood with a minimum two inch nominal dimension) can also be effective in deflecting convection heat (see Fig. 14)
- Enclose the underside of cantilevered and exposed decks with fire resis tive materials.

BUILDING MATERIALS

The use of fire-resistant building materials is typically the most effective way of making existing homes safer from brush fires. Exterior materials should have a fire-resistance rating of one to two hours, particularly the roof. Because the roof is exposed to airborne sparks it is the most vulnerable part of a home. Wood shingle and wood shake roofs are one of the leading causes of home loss during wildfires and the use of non-combustible roofing materials (such as tile) is strongly recommended. Some exterior wall covering materials with a one to two hour fire-resistance rating are stucco, brick, metal siding, concrete block, and rock. This is especially critical for parts of a home exposed to winds from the north or the east, or located at the top of a slope. Refer to the Uniform Building Code for further listings of fire-resistant building materials.

- Wood shingle roof should be replaced with non-combustible roofing materials
- Install a sprinkler system if the existing combustible roofing material cannot be replaced.
- Replace wood siding with fire resistive siding or paint with fire resistive paint.

Picture windows and sliding glass doors which face potential fire corridors should be made of thick, tempered safety glass and protected with fire resistive shutters or other protective devices.

LANDSCAPING FOR FIRE AND WATERSHED SAFETY

For home owners living in or adjacent to native chaparral the hazards of brush fires are well known. Less well known but equally serious are the problems of improper watershed management such as soil erosion, slope failures and landslides. These problems typically occur when protective vegetation is removed by wildfires, brush conversion or land development.

The main objective of watershed management is to maintain a dense cover of deep rooted healthy vegetation that enhances slope stability by controlling the flow of water on the slope. The main objective of brush management is the reduction of readily flammable fuel adjacent to structures. These apparently contradictory objectives can be accomplished through a compromise between minimizing fuel volume and maximizing root depth. There is no such thing as a plant that will not burn. All plants, even those considered "fire resistive", or those being watered will burn if the conditions are right. For this reason, modifying the landscape can be less effective than modifying your home. Landscaping and brush management however, should still be an integral part of your efforts to enhance the fire safety of your home. But before you run out and remove all of that native vegetation next to your house remember that the native plants are ideally suited for this environment. They thrive in the predominantly sterile, heavy soils without irrigation, fertilization and the need for pest and disease control. Root systems of woody chaparral species are typically extensive and penetrate deeply into the subsoil providing a high degree of slope and soil stability while minimizing natural runoff. To successfully implement the Brush Management program you do not need to replace the existing vegetation. In fact preservation of native vegetation is required for slopes over 50 feet in vertical height with a slope gradient of 25% (4:1) or greater.

The key to affecting fire safety in the landscape is to reduce the available fuel adjacent to your house. Heat, flame length, and rate of fire spread can be greatly diminished by reducing the continuity, height and quantity of the existing vegetation. This can be accomplished by pruning and thinning of the native plants, revegetation with non-natives or a combination of the two. In no case should hillsides be left devoid of vegetation.

PRUNING AND THINNING

Two key factors in creating a fire safe landscape are providing fuel discontinuity by the separation of the flammable plant cover (thinning) and reduction in fuel load by cutting out dead and excess growth of chaparral plants (pruning). Whenever possible, a person knowledgeable about the use and maintenance of native plants should be consulted to oversee the selection, thinning and pruning of these plants.

THINNING: This first step requires identification of the chaparral species and a familiarity with their various characteristics such as rooting depth, fuel loads, flammability, as well as habitat and aesthetic value. All native vegetation that is not to be removed during the initial thinning should be noted or flagged. The plants which are not to be saved should be cut off several inches above the ground without pulling out the roots. Certain native plants which in the wild are found as highly flammable shrubs can be cut back to the root crown. As sprouting and regrowth occur these plants can be maintained as low mounds of succulent flowering shrubs if properly watered and pruned. Examples include *Artemisia californica* (California Sagebrush), *Salvia mellifera* (Black sage), *Adenostoma faciculatum* (Chamise) and *Eriogonum fasciculatum* (Buckwheat).

Permanent eradication where appropriate can be accomplished by treating the stumps with herbicides. When using herbicides follow these five rules:

- 1. Select a herbicide that does not affect the remaining plants
- 2. Avoid overspray
- 3. Treat a small test area first
- 4. Use less than recommended
- 5. Do not use pre-emergent herbicides

The remaining plants should maintain the allowable coverage, massing and spacing required in Section 6.7. The following figures illustrate the idea of coverage, massing and spacing (15, 16, 17).



100% Canopy Coverage, Solid Foliage Mass with no Spaces between Plants



Reduced to 40% by Combination of Clearing & Thinning Canopy Coverage

Figure 15



Undulating, Brush - Cleared Edge and Retention of Specimens for a More Natural Appearing Transition.

Figure 16



Unpruned Shrub

Shrub Pruned to Remove 40% of Flammable Fuel

Pruning Existing Vegetation



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PRUNING: After thinning of the chaparral, the fuel load should be further reduced by pruning the native plants that have not been removed. While pruning individual plants is not feasible in coastal sage scrub, it is very effective for many hard chaparral species, such as *Ceanothus* (Mountain Lilac), *Heteromeles* (Toyon), *Rhus* (Lemonade Berry, Sugarbush), and *Rhamnus* (Coffeeberry, Redberry). These plants can be shaped into attractive, fire safe specimens by pruning dead and excessively twiggy growth. Figure 18 illustrates pruning of native shrubs.



Figure 18

Note that the limbs touching the groundcover have been removed, and that a large volume of material has been taken from the canopy. The limbs that remain should be those with young, vigorous shoots.

BRUSH CONVERSION

Reducing the fuel load of the chaparral can be accomplished by converting all or part of the existing native vegetation to low volume plants. Brush conversion should not be implemented in Brush Management Zone 3 and should not be attempted on slopes over 50% (2:1) unless appropriate soils engineering practices such as terracing, concrete bench and down drains are used or unless the slope is short (less than 25' vertical).

When implementing brush conversion consider the following guidelines:

 The volume of fuel can be reduced by removing dead material, trimming back lower large branches, and thinning of crowded plants. (See Pruning and Thinning Guidelines pg. C-4) and the standard state in the old the state of the state

2. When removing existing chaparral do not break the soil surface by pulling out the roots (grubbing).

This greatly increases the amount of soil erosion, even in dry weather.

3. When removed, native shrubs should be replaced with deep rooting, drought tolerant, low fuel volume plants. (See Table 6).

Root decay begins rapidly when plants die and planting of shallow rooted species cannot anchor the soil to the parent material. Generally, chaparral cannot be mixed effectively with plants requiring irrigation. Satisfying the water needs of plants which are not drought resistant will kill the chaparral.

4. Do not remove plants over more area than can be safely replanted and covered with low fuel plants the same season.

Removal of native vegetation can create temporary slope instability in that area. Erosion during brush conversion can be severe even on moderately steep slopes of 25% (4:1).

5. Erosion netting should be used at planting time whenever seasonal rains are expected before plant cover can be re-established.

6. Avoid monocultures, i.e. plantings of single species.

A mixture of species will perform better overall when site conditions are varied. Mixed plantings are also more visually compatible with the existing chaparral.

7. When planting trees and large shrubs anticipate their mature height and spread and space accordingly.

The canopies of large plants in brush management zones should not form a continuous planting mass capable of rapidly transmitting fire.

8. Minimize walking and maintenance activity on steep slopes since this promotes erosion.

Excessive traffic causes soil to become compacted thereby decreasing the soils water absorbing capability and increasing the amount of runoff.

PLANT SELECTION

Plants for use in brush management zones should be selected for these qualities (1) low growth habit, (2) drought tolerance, (3) fire retardance, (4) deep rooting habit, (5) aesthetically pleasing effect and (6) compatibility with different species. Because any plant can burn during extreme fire weather conditions identifying plants as fire retardant or fire resistant are misleading. The term "fire resistant"

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denotes plants capable of surviving fire. Fire resistant plants have adapted to fires in a variety of ways; some plants such as oak and pine are protected by thick bark, some will readily resprout from the trunk or crown after burning, while others produce seeds which germinate after being scarified by fire. The term "fire retardant" describes plants that are less flammable than others that contains the same amount of fuel. This may be due to the proportional differences of live to dead fine fuel present, the oil and mineral content of the foliage or to the percent of fuel moisture.

Some plants such as prostate rosemary, coyote brush and rockrose which burn readily are actually very good species for use in brush conversion. These plants are drought tolerant, generally low growing, have relatively low fuel volumes, are aesthetically pleasing and are adapted to the Southern Californian climate. The following guidelines are useful when reducing the fuel load either by pruning and thinning of native chaparral or through brush conversion:

1. Shallow rooted plants should not be used as permanent cover on steep slopes unless interplanted with deep rooting plants.

Most non-woody ground covers and grasses have an effective root depth of less than three feet and are labeled shallow rooted. Woody groundcover shrubs are typically moderately deep rooted (three - six feet in depth).

- Avoid the use of irrigated groundcovers around native plants such as sumac, (Laurel, Sugarbush or Lemonade Berry) and Oaks. This will cause root rot and kill the native plants.
- 3. Avoid using "Ice Plants" on steep slopes and where they can naturalize. Ice plants are low growing, (low fuel) with high moisture content (highly fire retardant) but have weak shallow roots and generally should not be used on steep slopes. Of the many types available Drosanthemum is the best for steep slopes over 2:1 with poor soil. White trailing Ice Plant (Delosperma alba) does well on slopes 2:1 or less if irrigated. "Freeway Ice Plant" (Carpobrotus), because it can survive without irrigation, can be invasive and should not be used where invasiveness is a problem. It should only be planted on slopes 2:1 or less. Malephora crocea is a good substitute for Carpobrotus. It is not as invasive and requires no irrigation.
- 4. Annual grasses provide quick cover but should be used only to control short term erosion problems.

Successful revegetation with grasses can contribute to population explosions of burrowing rodents (e.g. ground squirrel) by providing a plentiful source of seeds. Burrowing rodents can be very detrimental to slope stability.

- Avoid locating too many trees in the Brush Management Zones. Although most trees can be kept fairly fire retardant through periodic pruning; the tendency is to not prune them and they then become more flammable.
- Except for prostrate varieties, Acacias, Cedars, Cypress, Eucalyptus, Juniper, Pines, Rosemary and California Pepper should not be planted between native chaparral and structures.

Conifers and other plants with small leaves and high resin or oil content can be relatively flammable, even if irrigated.

 When thinning or converting brush, remove highly flammable plants such as Sages (white, black, purple), Buckwheat, Chamise and California Sagebrush wherever permanent slope stability permits.

Since most chaparral species will resprout this process must be repeated every so often depending upon the rate of regrowth. Eradication of these species should be done only in conjunction with revegetation.

8. The following are valuable watershed species that provide good slope and soil stabilization and should be retained in limited numbers. When retained, these plants should be thinned to reduce their foliage mass.

Arctostaphylos species - Manzanita Ceanothus species - Wild Lilac Comarostaphylis diversifolia - Summer Holly Garrya species - Silk Tassel Heteromeles arbutifolia - Toyon Rhamnus species - Buckthorn Rhus species - Sumac Quercus species - Oak

The following are low fuel volume native plants recommended for retention where conditions warrant.

Eriophyllum species - Yarrow Eschscholzia californica - California Poppy Lotus scoparius - Deerweed Lupinus species - Annual Lupines Mimulus species - Monkey Flower Penstemon species - Penstemon Salvia columabariae - Chia Salvia sonomensis - Creeping Sage Trichostema lanatum - Woolly Blue Curls Zauschneria species - California Fuchsia Iva hayesiana - Hayes Ivy

Appendix "C"

ANNUAL UL

Antipole & damphiliperate	\$1.34		COM	IMONL	YUSE	D FIR	E RETA	RDANT	r plant	[5]
	EFFEC	TIVE ON								
ТҮРЕ	<2:1	2:1- 1.5:1	>1.5:1		WATER NEEDS		HEIGHT		RE- SPROUTS	ADVANTAGES
GROUND COVERS										
Arciotheca calendula Capeweed	Yes	7	No	High	Low	1'-3'	6"-8" 3'-4'	12"-18"	Yes	Showy flowers; Spreads by runners
Atriplex semibaccata Saltbrush	Yes	Yes	7	High	Very Low	3'-4'	<12" 3'-4'	Seeded	Yes	Very drought resistant; Easily seeded
Gazania rigens 'Leucolaena' Trailing Gazania	Yes	?	No	Mod	Low	<3'	12" 3'	12"-18"	Yes	Colorful flowers; Silvery grey foliage
Hedera holix English ivy	Yes	Yes	?	Mod	Avg.	3'-4'	12" to 10'	12"	If Watered	Excellent for erosion control in sun or shade
Hedera canaricnsis	Yes	Yes	7	Low-	Avg.	3'-4'	12"-24"	12"-18"	If	Excellent for erosion control in

to 10'

12"-24"

4'

<12"

to 10'

4"

2'

18"

18"

12"

Watered

If

Watered

Yes

Yes

sun or shade

erosion control:

Showy flowers;

Tolerates some

Tolerates foot

Good soll binder

foot traffic

traffic;

100

Good for

Mod

Mod

Mod-

High

High

Avg.

Low-

Avg.

Low

<3'

3'

<3'

Page C-10

Hypericum calycinum

Osteospermum fruticosum

Trailing African Dalsy

Yes

Yes

Yes

Yes

?

?

No

No

No

Algerian Ivy

Aaron's Beard

Phyla nordiflora

Lippia

Table 6

COMMONLY USED FIRE RETARDANT PLANTS

DISADVANTAGES

Frost sensitive;

Looks "weedy"

Relatively

short lived

Relatively

short lived

Leaves will burn if

Attracts rats & snails

Leaves will burn if under watered;

Attracts rats & snails

under watered;

Invasive if

well watered;

Attracts bees

Needs regular

maintenance;

Frost sensitive

Attracts bees;

winter

Unattractive in

- -

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	EFFECT	IVEON	SLOPES								
TYPE	<2:1	2:1- 1.5:1	>1.5:1	RETAR- DANCE			HEIGHT SPREAD		RE- SPROUTS	ADVANTAGES	DISADVANTAGES
Salvia sonomensis Creeping Sage	Yes	Yes	7	Mod- High	Very Low	3'-4'	6" 3'	12"	If Watered	Deep rooted; Drought resistant	Killed by over watering in heavy soils
Trifolium fragiferum 'O'Conner's' Strawberry Clover	Yes	Yes	7	Mod	Low- Avg.	to 4'	6"-12" 2'-3'	Seeded	Yes	Good groundcover for hydroseeding	Attracts bees & gophers. Relatively short lived
Trifolium hirlum 'Hykon' Hykon Rose Clover	Yes	Yes	7	Mod	Very Low	6"-12"	2'-3' 3'-4'	Seeded	Yes	Good nurse crop; Reseeds without irrigation	Attracts bees & gophers
Verbena peruviana Peruvian Verbena	Yes	?	No	Low	Low	<3'	<6" 3'	18"	No	Bright red flowers; Low growing	Looks best with regular irrigation
Vinca major Perlwinkle	Yes	Yes	No	Mod	Low	3'	6"-24" 6'	18"	If Watered	Low maintenance; Tolerates shade	Requires some shade; Keep wat- ered to look best
Vinca minor Perlwinkle	Yes	Yes	No	Mod	Avg.	3'	6"-18" 4'	12"	If Watered	Low maintenance; Tolerates shade	Requires some shade; Needs water
ICE PLANTS										Deep roots for	Needs fertilizer
Aptenia cordifolia Red Apple	Yes	Yes	?	High	Low	3'-4'	12" 3'	12"-18"	Yes	an Ice Plant	and water to look good
<i>Delosperma alba</i> Disneyland Ice Plant	Yes	7	No	High	Low	1'-2'	6" 3'	18"	Yes	Good green color; Grows on relatively steep slopes	Needs fertilizer and water to look best

Must be trimmed up to tree form
 Use is questionable
 Less Than
 Less Than

- ≤ Less Than or Equal To > Greater Than or Equal To

I-lorizontal Distance Vertical Rise <2:1 = 50% = 26° 1. 5:1 = 67% = 34° <2:1 -

- > Greater Than

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	EFFECT	IVE ON S	SLOPES								
TYPE	<2:1	2:1- 1.5:1	>1.5:1	RETAR- DANCE			HEIGHT SPREAD	SPACING	RE- SPROUTS	ADVANTAGES	DISADVANTAGES
Drosanthemum floribundum Rosea Ice Plant	Yes	Yes	?	High	Low	1'-2'	6" 3'	12"-18"	Yes	Colorful flowers; Grows on steep slopes	Shallow roots; Use with deep rooted shrubs
Lampranthus spp. Trailing Ice Plant	Yes	?	No	High	Low	1'-2'	12" 2'	12"-18"	Yes	Brilliant spring flowers	Shallow roots; Use with deep rooted shrubs
Malephora crocea Crocea Ice Plant	Ycs	Yes	7	High	Low	1'-2'	12" 2'	12"-18"	Yes	Grey-green follage; Very tough & hardy	Blooms less showy than others; Shallow roots
LOW SHRUBS	1						1				
Acacia redolens Prostrate Acacia	Yes	Yes	7	Low	Low	>6'	24"-30" 8'-15'	5'-15'	Poor	Fast growing; Drought tolerant	Relatively high fuel volume; Attracts bees
Baccharis pilularis 'Twin Peaks' Dwarf Coyote Brush	Yes	Yes	?	Low	Very Low	6'	12"-24" 6'	2' '	Vigorous	Deep rooted; good for erosion control	Needs pruning; Burns, but has low fuel volume
Bougainvillia 'La Jolla' Bush Bougalnvillen	Yes	Yes	7	Low	Low	<3'	3' 6'	6'	No	Spectacular blooming accent shrubs	Can burn, but has low fuel volume
Ceanothus griseus 'Horizontalis' Cormel Creeper	Yes	Yes	7	Low- Mod	Low	6'	18"-30" 10'	4'	If Watered	Showy flowers; Deep-rooted; California Native	Short lived; Susceptible to overwatering
Cistus crispus Descanso Rockrose	Yes	Yes	No	Low- Mod	Low	3'-4'	12"-24" 6'	2'	No	Showy flowers; Bright green foliage; Attracts bees	Requires some maintenance

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	EFFECT	IVE ON	SLOPES	FIRE	2008-0271 P.000						
түре	<2:1	2:1- 1.5:1	>1.5:1		WATER NEEDS		HEIGHT SPREAD	SPACING	RE- SPROUTS	ADVANTAGES	DISADVANTAGES
Coprosma kirkii Prostrate Coprosma	Yes	?	No	Low	Low	3'	2'-3' 4'-8'	3'	No	Tough;Low profile; Controls erosion; Stands sea wind	Slower growing than Prostrate Myoporum
Coprosma pumila Prostrate Coprosma	Yes	?	No	Low	Low	3'	2'-3' 5'-8'	2'-3'	No	Tough; Mounding groundcover;Stands much drought	Prune out upwardly growing branches
Lantana montevidensis Trailling Lantana	Yes	?	No	Low	Low	3'	18" 4'	18"	No	Colorful flowers; Low maintenance	Can burn, but relatively low fuel volume
Myoporum parvifolium 'Pacifica' Prostrate Myoporum	Yes	?`	No	High	Low	3'	6'-12' 10'	3'-6'	No	Very fast growing Deep green; Low growing	No foot traffic; Attracts bees
Rosmarinus officinalis 'Prostrata' Prostrate Rosemary	Yes	Yes	7	Low	Low	3'-5'	12"-24" 6'	2'	No	Low maintenance; Showy flowers	Flammable but has low fuel volume
Santolina virens Green, Lavender Cotton	Yes	Yes	No	Low- Mod	Low	3'-5'	18"-24" 3'	י 3י	Yes	Bright green foliage; Chartreuse flowers	Dead flowers need clipping; Attracts bees
TREES										Stands drought,sun,	Frost sensitive
Aloe arborescens Tree Aloe	Yes	?	No	Mod- High	Low	to 18'	15' <3'	10'	Yes	salt spray & shade; Dramatic blooming accent	Inland
Aloe ferox Tree Aloe	Yes	7	No	Mod- High	Low	<3'	to 15' 10'	15'	Yes	Dramatic blooming accent trees; Scarlet flower clusters	Frost sensitive inland

Must be trimmed up to tree form
 Use is questionable
 < Less Than ≤ Less Than

> Greater Than

≤ Less Than or Equal To
> Greater Than or Equal To

Horizontal Distance Vertical Rise <2:1 = 50% = 26° 1. 5:1 = 67% = 34° <2:1-

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	EFFECT	IVEON	SLOPES	FIRE							
TYPE	<2:1	2:1- 1.5:1	>1.5:1	RETAR- DANCE			HEIGHT SPREAD	SPACING	RE- SPROUTS	ADVANTAGES	DISADVANTAGES
Ceratonia siliqua Carob Tree	Yes	Yes	Yes	Low	Very Low	>10'	40' 40'	40'-60'	Yes	Relatively fire retardant tree	High fuel volume; keep away from structures
Heteromeles arbutifolia Toyon*	Yes	Yes	Yes	Low	Low	>6'	6'-10' 4'-10'	20'	Yes	Relatively fire retardant native; Red be rri es	Slow growing
Rius integrifolia Lemonade Berry*	Yes	Yes	Yes	Low	Low	>6'	to 10' to 10'	20'	Yes	Deep rooted native shrub	Can burn, keep away from structures
Umbelluria californica Colifornia Laurel	Yes	Yes	Yes	Low	Low	>10'	20'-25' 20'-25'	40'	Yes	Relatively fire retardant tree; Glossy foliage	Can burn, keep away from structures
Washingtonia robusta Mexican Fan Palm	Yes	7	No	Low	Low	<4'	100' 15'	20'	No	Relatively fire resistant if skirts removed	Dry leaf skirts can become a flaming torch
Yucca gloriosa Soll-tip Yucca	Yes	7.	No	Mod	Low	3'	15' 10'	20'	Yes	Dramatic accent trees	Provides little shade
VINES										Colorful spreading	Can burn, but
Distictus buccinatoria Blood Red Trumpet Vine	Yes	Yes	7	Low	Low Avg.	3'	12" 10'	10'	No	vine; Useful as accent	low profile reduces danger
Tecomaria capensis Cape Honeysuckle	Yes	Yes	7	Low	Low	<3'	to 6' 6'	10'	No	Colorful accent vining shrub	Can burn, but has relatively low fuel volume

Must be trimmed up to tree form
 Use is questionable
 Less Than
 Less Than

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Horizontal Distance Vertical Rise <2:1 = 50% = 26°

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IRRIGATION

Proper watering is essential for maintaining healthy plants anywhere, particularly when implementing brush conversion. Ideally brush management zones should require no supplemental watering especially when no brush conversion is being done. However, during critical fire weather conditions when there is extreme heat, very low relative humidity and strong gusting winds shrubs can become timber dry in a few hours even if recently watered. Periodic deep watering of plants in brush management zones can reduce their flammability.

Most chaparral plants extract as much soil moisture as possible thereby leaving the soil too dry to absorb moisture of rainfall. Proper watering of brush management areas should be patterned after the natural water withdrawal and recharge cycle. The seasonal irrigation requirements depends on the amount and distribution of rainfall and the timing of last and first effective rainfall of a season, soil depth and percolation rate of the soil and the type of plantings. Because of these many variables, a generic watering schedule cannot be developed. Typically sandy soils require more water than heavy soils. Slopes with north and east exposures require less water than those with south and west exposures.

The proper watering of newly established plantings does not accelerate the natural erosion rates nor damage the soil structure. Deep watering is more beneficial to hillside plants than shallow watering because it recharges soil moisture more completely throughout the root zone and encourages some plants to develop a deeper root system. Water should be withheld from mature plants as much as possible to force slow down of growth, which also results in reduction in transpiration. Water should be withheld towards the end of summer, allowing plants to harden off while they can still withdraw moisture from their root zones. Withholding water as fall approaches leaves the soil relatively dry at the onset of the rainy season and allows it to absorb water readily to greater soil depths. Constant shallow watering on the other hand, only partially recharges the root zone, wastes water through evaporation, and may induce a more shallow root system that makes hillside plants less drought-tolerant. Deep watering should not be done after about mid-September. If adequate rains do not occur until late in the season, occasional shallow watering may then be required to keep the more-water-demanding plants alive.

Consistent with the many variables which determine irrigation requirements the following guidelines apply:

 Deep water native vegetation about once a month during the dry season. Water should be applied very slowly over a long period of time and preferably at night or when it is cloudy, to avoid root rot and disease problems. When slow watering is not possible, stop watering at the first signs of runoff and wait 15 to 20 minutes. Repeat this procedure a number of times. Hand held watering with a garden hose applies water much too quickly and is not recommended, particularly on a slope.

2. Avoid overspray and runoff of water into native vegetation beyond the brush management zones.

Too frequent watering will promote excess growth and may kill the plants. Excess growth means more fuel which necessitates more pruning and thinning. Dead vegetation is highly flammable.

- Use drip irrigation on slopes. Drip irrigation of shrubs on slopes eliminates overspray and reduces runoff. However, drip systems typically require more maintenance to keep the emitters functioning.
- 4. If used, spray heads and impact sprinklers should be selected for the lowest precipitation rates possible.
- Do not provide irrigation in Zone 3. Brush conversion in zone 3 is not recommended and improper irrigation can result in excess weeds, growth, erosion and plant mortality.
- 6. Ornamental landscapes adjacent to a home should always be kept watered. All plants, natives and ornamentals, will burn if conditions are right. Ornamentals with low moisture content can be just as dangerous as the native chaparral.

MAINTENANCE

Regular inspections and landscape maintenance is necessary to minimize the potential damage or loss of property from brush fires and other natural hazards such as erosion and slope failures. Because each property is unique establishing a precise maintenance schedule is not feasible. However, for effective fire and watershed management, property owners should expect to provide maintenance according to each brush management zone:

Zone 1: Year-round maintenance

Zone 2: Seasonal maintenance

Zone 3: Yearly inspections, periodic maintenance

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BRUSH MANAGEMENT ZONE 1

This is the most critical area for fire and watershed safety. All ornamental plantings should be kept well watered and all irrigation water should drain toward the street. Rain gutters and drainage pipes should be cleaned regularly and all leaves removed from the roof before the fire season begins. All planting, particularly non-irrigated natives and large trees should be regularly pruned to eliminate dead fuels, to reduce excessive fuel and to provide adequate space between plants and structures.

BRUSH MANAGEMENT ZONE 2

Seasonal maintenance in this zone should include removal of dead woody plants, eradication of weedy species and periodic pruning and thinning of trees and shrubs. Removal of weeds should not be done with hand tools such as hoes, as this removes valuable soil. The use of weed trimmers or other tools which retain short stubble that protects the soil is recommended. Native shrubs should be pruned in the summer after the major plant growth occurs. Well pruned healthy shrubs should typically require several years to build up excessive live and dead fuel. On slopes all drainage devices must be kept clear. Reinspect after each major storm since minor soil slips can block drains. Various groundcovers (e.g. Ivy) should be periodically sheared and thatch removed,(grasses and some Ice Plants). Diseased and dead wood should be pruned from trees. Fertilizing trees and shrubs is not typically recommended as this may stimulate excessive growth. However, a light application of balanced fertilizer may be beneficial in producing new growth when severely pruning old shrubs and woody groundcovers.

BRUSH MANAGEMENT ZONE 3

Ongoing selective thinning and pruning as previously discussed must be done to reduce the amount and continuity of fuel. Ideally, this thinning and pruning is accomplished incrementally each year by removing the oldest and most flammable vegetation while retaining the younger less flammable vegetation.

SAN DIEGO MUNICIPAL CODE SECTION 55.0888.0201

Uniform Fire Code - Appendix IIA

- 16. Clearance of Brush or Vegetative Growth from Structures
 - (a) Any person owning, leasing, controlling, operating or maintaining any building or structure in, upon or adjoining any hazardous fire area, and any person owning, leasing or controlling any land adjacent to such buildings or structures, shall at all times:
 - Maintain around and adjacent to such building or structure, an effective firebreak made by removing and clearing away, for a distance therefrom equal to the total Brush Management Zones Depth, from Table 2 (please refer to Table 5 in Section 6) on each side thereof. All zones shall be established and maintained in accordance with the standards adopted by the City Council as set forth in Section six of the document entitled "City of San Diego Landscape Technical Manual," on file in the office of the City Clerk as document number RR - 274506, including supplements and amendments.
 - 2. Remove that portion of any tree which extends within 10 feet of the outlet of any chimney.
 - maintain any tree adjacent to or overhanging any building free of dead wood.
 - 4. Maintain the roof of any structure free of leaves, needles or other dead vegetative growth.
 - (b) Table 1 (please refer to Table 4 in Section 6) establishes the fire hazard severity rating based upon the priority designation of an area and a structure's geographic location in the City as shown in Figure 1 (please refer to Figure 6 in Section 6).
 - (c) Table 2 (please refer to Table 5 in Section 6) establishes the required depth of each brush management zone based upon the fire hazard severity class identified in Table 1 (please refer to Table 4 in Section 6).
 - (d) For new structures adjacent to slopes requiring brush management, the Zone 1 depth established by Table 2 may be reduced by 10 fect when all of the following architectural features are provided:
 - □ The roof shall be of fire retardant construction. Wood shake or shingles whether fire retardant or untreated are not permitted.

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- Roof overhangs shall have an exterior surface as required for one hour fire resistive walls and no eave vents shall be permitted for any portion of a structure located within the minimum Table 2 setback distance.
- □ All eave vents shall be covered with wire screen not to exceed 1/4 inch mesh.
- (e) For all lots which have received approval on a tentative map subsequent to November 15, 1989, (the effective date of this ordinance), where structures will be located above slopes requiring brush management, with a slope gradient of 4:1 (25 percent) or steeper and 50 feet in vertical height or higher, the following requirements shall apply:
 - Structures shall be set back for a distance equal to the minimum required Zone 1 depth established in Table 2. The setback shall be measured from those portions of a slope with gradients of 4:1 (25 percent) or steeper.
 - Notwithstanding any section to the contrary, any legal building lot for which a Tentative Map has been approved prior to November 15, 1989, (the effective date of this ordinance), the Zone 1 setback shall not be required as a condition of a subsequent permit when substantial conformance exists with previously approved discretionary permits.
- (f) For new structures adjacent to slopes requiring brush management, the depth of Zone 1 may be reduced as allowed in accordance with section (d).
- (g) For new structures, the depth of Zone 3 shall be increased one-foot for every one foot reduction of the building setback below the Zone 1 depth established within Table 2 (please refer to Table 5 in Section 6).
- (h) In the event that any of the conditions prohibited by subsections (a) through (g) of this section exist, the Fire Chief may give notice to the owner of the property upon which such condition exists to correct such prohibited condition, and if the owner fails to correct such condition the executive body may cause the same to be done and make the expense of such correction a lien upon the property upon which such condition exists, pursuant to the Municipal Code provisions governing abatement of nuisance.
- (i) For all lots which have received approval on a tentative map subsequent to November 15, 1989, the effective date of this ordinance), all new structures shall be sited such that no brush management will occur on publicly owned open space or park lands.

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- (j) The approved brush management plan shall be maintained in accordance with guidelines set forth by the Fire Chief. If a Planning Department permit is required, the approved brush management plan shall be maintained in accordance with guidelines set forth by the Planning Director in addition to those set forth by the Fire Chief. In a case where publicly owned open space or parklands are involved, the Park and Recreation Director may establish additional requirements for maintenance.
- (k) In a case where a brush management plan does not comply with the provisions of Appendix IIA, the Fire Chief shall have the authority to approve or conditionally approve a modified brush management plan if the findings pursuant to section (l) can be made. Additionally, when a planning department permit is required or when publicly owned open space and parklands are involved the findings pursuant to section (m) must be made. Deviations involving a planning department permit shall require approval from the Planning Director. Approval by the Park and Recreation Director shall also be required for any deviations which impact publicly owned open space and park lands.
- (1) FINDINGS
 - 1. The proposed brush management program will meet the purpose and intent of Appendix II A of the Uniform Fire Code; and
 - 2. The proposed brush management program, because of conditions that have been applied to it, will not be detrimental to the health, safety and general welfare of persons residing or working in the area; and
 - 3. The provisions as outlined in Section 6.6-2 of the document entitled "City of San Diego Landscape Technical Manual," (on file in the office of the City Clerk as document number RR-274506 shall be satisfied and the proposed development shall provide other fire resistive features as required by the Fire Chief; and
 - Compliance with the provisions of this section in addition to any other applicable adopted plans or ordinances would preclude any reasonable development on the site.

(m) SUPPLEMENTARY FINDINGS

1. The proposed brush management program, to the extent feasible, will not adversely affect floodplains, biologically sensitive lands, hillsides, significant prehistoric sites and resources, and wetlands as defined in the Resource Protection Ordinance, San Diego Municipal Code Section101.0462; and

- 2. The proposed brush management program, to the extent feasible, will minimize the alterations of vegetation and will not result in undue risks from erosional forces.
- (n) A copy of all findings shall be filed with the Fire Chief and Planning Director within (7) days of such action. Findings shall also be filed with the Park and Recreation Director for publicly owned open space and parklands.

Appendix "C"

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	3 23 0 100	ZONE 1			ZONE2		ZO	NE 3
SECTION 6.7 REQUIREMENTS	Irrigation On Pads	Irrigation On Slopes	Non- irrigated	Irrigation On Pads	Irrigation On Slopes	Non- irrigated	Inigation On Pads	Nor Irriga
-1.01 thru -1.08								
-1.09								
-2.01								
-3.01 thru -3.03								
-3.04								
-3.05								
-4.01								
-4.02								
-4.03								
-4.04								
-5.01								
-5.02								
-5.03								
		SPECIA	L REQUI	REMENTS	3			n in Tasa ng
SECTION 6.6 REQUIREMENTS		ZONE 1			ZONE 2		ZOI	VE 3
6.6-1	Mand	atory Setba	ck.					
6.6-2	Allov to Set	vable Reduc Iback	tions					
6.6-3							Mandatory Increase if Reduced F	Zone 1
6.6-4	Mano	latory Setba	ck from City	Owned Ope	en Space of C	City Owned	Parklands	
6.6-5							Zone 1 is In (Table 5 or 6	
6.6-6	For Ir	rigated Slop	×					

Table 7

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DEFINITIONS

As used in the Technical Manual in the context of fire and watershed management.

Chaparral - The predominant plant community in Southern California comprised of shrubby plants that have adapted to dry summers and moist winters. There are two subformations of chaparral called "hard chaparral" and "soft chaparral". They are commonly referred to as chaparral and coastal sage scrub communities, respectively.

Chaparral -Hard - Composed primarily of medium to large (10'-15') woody shrubs (*Rhus integrifolia* - Lemonade Berry, *Malosma laurinus* - Laurel Sumac, *Heteromeles arbutifolia* - Toyon, *Ceanothus spp.* - Ceanothus spp., *Manzanita spp.*- Manzanita spp., *Rhamnus spp.* -Buckthorn spp., etc).

Chaparral - Soft - Commonly found in coastal zones and is generally restricted to the more xeric (dry) sites. The dominant species which make up the coastal sage scrub community are of smaller stature (2'-6') than those in the "hard chaparral" community and provide a more open habitat that encourages more herbaceous species including the sages. Many of the coastal sage species are shorter lived than the "hard (woody) chaparral" species and therefore accumulate dry fuels more rapidly, and in response to drought, drop their leaves more readily and at an earlier stage in the dry (fire) season than woody chaparral (Radtke 1983).

Clearing - Cutting and removal of vegetation from the land without disturbance to or destruction of the root system and/or soil surface.

Erosion - Gradual or immediate deterioration of a slopes' form or stability.

Fire department priority designation- A designation assigned to areas of native vegetation based on the type and density of vegetation, the percent age of slope, accessibility and fire history. Priority (1) areas typically have the most fuel, steepest slopes, little or no access (for fire fighting equipment), and a close proximity between the structure(s) and the edge of the slope(s).

Fire retardant plant - A plant that is less flammable than another containing the same amount of fuel. This can be a consequence of the live to dead fuels ratio, the oil and resin content of the foliage, the percent of fuel moisture, or the age of the plants.

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Fuel breaks - Areas between undisturbed vegetation and structures where selective pruning and thinning is used to reduce the volume of fuel.

Greenbelts - Continuing areas of low fuel-volume vegetation typically with irrigation.

Grubbing - Removal of vegetation or destruction by removal of, or disturbance to, the root system by any means including chemical.

Percolation rate - The rate at which water passes through soil.

Pruning - The removal of growth from a plant in order to reduce the fuel load. The material removed may be dead or dying wood; or simply a portion or number of branches of an individual plant.

Thinning - The cutting down of plants in order to reduce fuel load and continuity of fuel. With the second s

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APPENDIX F

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CITY OF SAN DIEGO BEST MANAGEMENT PRACTICES EROSION CONTROL

(reports lospnrmp.s96)

"GREENBOOK" STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION

1994 EDITION

Written And Promulgated By Joint Cooperative Committee of the Southern California Chapter American Public Works Association And Southern California Districts Associated General Contractors of California

PUBLISHED BY

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EM. Building News

Division of BNI Publications, Inc.

3055 Overland Ave., Los Angeles, Callf. 90034 (310) 202-7775 Copyright 1994 by BNI Publications, Inc. irrigated to a depth of at least 8 inches. As soon as the soil can be worked, the specified commercial fertilizer shall be worked into the top 1 inch of soil.

At the time of planting, the top 2 inches of soil shall be friable and contain enough moisture to prevent stolons from drying out during the planting operation. The stolons shall be worked into the soil to a depth of 1/2 to 1-1/2inches by a mechanical or hand planter, or broadcast by hand and covered with 1/4 inch of mulch.

When the area to be planted exceeds 10,000 square feet, a mechanical spreader shall be used; when less than 10,000 square feet and more than 2,000 square feet, the use of a hand planter or mechanical planter is optional; and when less than 2,000 square feet, handplanting or broadcasting with mulch is optional.

The planted stolons shall not be allowed to dry out. Watering shall begin immediately after planting and the stolons kept moist at all times until the plants are well established.

When overseeding is required, the seed shall be spread in accordance with 308-4.8.2, Method A, immediately after planting stolons.

308-4.9 Erosion Control Planting.

308-4.9.1 General. Erosion control planting shall be for slope protection. Topsoil preparation and conditioning shall be in accordance with 308-2.3.

308-4.9.2 Straw Stabilization. When straw stabilization is specified, Type 6 mulch shall be incorporated into the slope topsoil either by discing or with a steel plate studded roller. The steel plate studs shall be at least 6 inches long, not more than 6 inches wide, and approximately 1 inch thick, with rounded edges. The roller shall be capable of forcing the straw into the soil a sufficient depth to tie down the surface soils.

308-4.9.3 Seeding and Mulching. Seed, fertilizer, mulch, and other specified materials may be applied on slopes by Method A or Method B described in 308-4.8.2.

308-4.9.4 Sprigging. Sprigging shall consist of planting turf grasses, cut stems of plants, and plants with attached root system, but without adhering soil.

Sprigs shall normally be harvested and planted within a 24-hour period. Ice plant sprigs shall be harvested between 48 and 96 hours before planting so that a thin callus is formed over the cut surface of each sprig. Sprigs shall be shaded during callusing, but shall not be moistened.

Turf grasses shall be planted in accordance with 308-4.8.4.

Ice plant sprigs shall be planted in moist soil in holes or furrows 4 inches deep and the hole or furrow refilled with soil and made firm around the plant in such a manner that the plant is not damaged.

Sprigs shall be planted individually at specified spacing. When row sprigging is specified, planting shall be in furrows cut along the countour of the slope.

If mulching of sprigged areas is required, it shall immediately follow planting.

308-4.9.5 Watering. All seeded and planted areas shall be kept moist during the establishment period.

Areas containing ice plants shall be maintained in a barely moist condition to a depth of 1 inch below the planted root depth.

When a permanent irrigation system is not available, the Contractor shall provide whatever temporary system is necessary to provide adequate watering during the establishment period without erosion detrimental to the planting.

308-5 IRRIGATION SYSTEM INSTALLATION.

308-5.1 General. The Contractor shall furnish all necessary materials, labor, and equipment required to complete the work of installing the irrigation system in accordance with the Specifications.

Large specimen plants shall be planted before installing the irrigation system, as required by 308-4.4.

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1994 REGIONAL SUPPLEMENT AMENDMENTS

TO "GREENBOOK" "STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION" 1994 Edition

Approved and adopted by the San Diego Regional Standards Committee

Prepared by: County of San Diego Department of Public Works December 23, 1994 308-4.9 Erosion Control Planting

308-4.9.1 General (Pg. 590)

Second sentence, delete the words "and conditioning".

308-5 Irrigation System Installation

308-5.1 <u>General</u> (Pg. 591)

Fourth paragraph, amend to read: "Utility connections shall be as shown on the plan or designated by the utility company. The Contractor shall include in its bid, all costs for such utility connections shown on the plans or designated by the utility company."

308-5.2 Irrigation Pipeline Installation

308-5.2.1 General (Pg. 592)

Fourth paragraph, amend to read: "Unless otherwise specified no P.V.C. pressure pipeline shall be installed within 3 feet of and parallel to another line."

308-5.2.2 Steel Pipeline (Pg. 593)

Third paragraph, amend to read: "Joints shall be made with a non-toxic non-hardening joint compound or teflon tape applied to the male threads only."

308-5.2.4 Copper Pipeline (Pg. 594)

First paragraph, add: "Copper pipe shall be butt square and all burrs and fins removed."

 Second paragraph change "50-50 tin-lead solder" to 40-60 tin-lead solder."

308-5.3 Installation of Valves, Valve Boxes, and Special Equipment (Pg. 595)

Third, fourth, fifth and sixth paragraphs, amend to read: "Valves shall be the same size as the pipeline in which they are to serve. Gate valves and sectional

control valves shall be installed below ground and shall be equipped with a sleeve contered on the valve stem.

Quick-coupler valves and garden valves projecting above grade shall be 12 inches from curbs, pavement and walks. In ground cover and shrubbery areas, quick coupler valves shall be set 4 inches above finish grade, and garden valves shall be set a minimum of 8 inches above finish grade.

Quick couplers in lawn/turf areas shall be installed at finish grade to not over 1/2" above finish grade.

All valve boxes and pipe sleeves with caps shall be set to finish grade. Backflow preventers shall be provided with pipe supports and the accessories necessary to properly secure the assembly."

308-5.4 Sprinkler Head Installation and Adjustment

308-5.4.2 Location, Elevation and Spacing (Pg. 596)

Second, third, fourth and fifth paragraphs, amend to read: "In lawn areas, sprinkler heads shall be installed 1/2-inch above finish grade. Lawn sprinklers shall be installed 2 inches clear of adjacent walks, curbs, paving headers and similar improvements.

Sprinkler heads shall be installed a minimum of 6 inches from adjacent vertical elements projecting above grade, such as walls, planter boxes, curbs and fences.

Unless otherwise specified, shrub heads, bubbler heads and impact sprinklers shall be installed 6 inches above finish grade.

Nozzle lines projecting above finish grade shall be at least 12 inches from adjacent curbs, walk, paving and similar improvements.

308-5.4.3 Riser and Nozzle Line Installation (Pg. 597)

Second paragraph change the word "oscillating" to "impact".