# TIJUANA RIVER VALLEY REGIONAL PARK

# AREA SPECIFIC MANAGEMENT DIRECTIVES

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Approved by:

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# INTRODUCTION

The Tijuana River Valley Regional Park (TRVRP) consists of approximately 1,800 acres within the City of San Diego, adjacent to the California/Mexico border Exhibit 1. The boundary of the TRVRP is shown in Exhibit 2, as well as the local limits of the Multi-Habitat Planning Area, the City of San Diego Multiple Species Conservation Program (MSCP) Subarea Plan.

A Joint Exercise of Powers Agreement between the County of San Diego and the City of San Diego was approved by the Board of Supervisors on May 14, 1996. (Appendix A) This agreement identifies the County as the manager of the City owned lands within the TRVRP. It also includes a clause that requires County and City staff coordinate any projects within the TRVRP that could impact the City-owned lands.

An Environmental Impact Report (EIR) for the Trails and Habitat Enhancement Project was certified by the County Board of Supervisors on December 13, 2006 (Item 5) (Appendix B. This appendix is not attached except by reference. It can be viewed on the website at www.sdparks.org.). As a condition of the project, the County Department of Parks and Recreation (DPR) was required to prepare an Area Specific Management Directive (ASMD) for the TRVRP.

## Purpose of the ASMD

The ASMD has been prepared as a guidance document to preserve and manage the biological and cultural resources within TRVRP while balancing the need to provide appropriate passive recreational opportunities. It is the goal of the Department of Parks and Recreation (DPR) to promote natural and cultural resource management strategies that ensure environmental preservation, quality of life, and economic development. Enhancing the quality of life for San Diego County residents requires a balance between the responsibility to preserve biological and cultural resources in accordance with the City of San Diego MSCP Subarea Plan (Page 69-72), with our obligation to meet the residents varying recreational needs. DPR has completed the following adaptive management plan for the TRVRP to ensure there is a balance between the preservation of the resources with our obligation to provide recreational opportunities for the public within TRVRP.

## Property Description

### Location and Adjacent Land Uses

The TRVRP is located in the City of San Diego in the southwestern portion of San Diego County (Exhibit 2). The TRVRP is bounded on the east by Dairy Mart Road and the residential community of San Ysidro (with the exception of a portion of the Dairy Mart Ponds that extend further east between the Interstate 5 (I-5) corridor and Camino de la Plaza), on the west by Border Field State Park

and the Tijuana Estuary, on the south by the U.S. (U.S.)-Mexico International Border, and on the north by Sunset Avenue (with the exception of 95 acres immediately north of Sunset) and the residential community of Otay-Nestor.

The TRVRP is bisected by the east/west flowing Tijuana River, which flows from Mexico and drains into the Pacific Ocean through the Tijuana River Estuary located west of the TRVRP. The Tijuana River Valley (Valley) generally consists of a broad floodplain with high natural mesas to the south, bounded on three sides by urban development and the Tijuana Estuary to the west. The Valley floodplain is a mixture of agricultural fields, equestrian facilities, rural housing, riparian woodland, and disturbed habitats. The Dairy Mart Ponds make up the eastern boundary of the area. The mesas and canyon areas contain healthy coastal sage scrub and maritime succulent scrub communities. Portions of the lands within the mesas and Smugglers Gulch may be disturbed by the proposed Boarder Fence Project. Several areas have been previously disturbed by illegal dumping of trash and off-road vehicles.

## Relationship to the MSCP

The MSCP is a cooperative habitat program that encompasses 582,000 acres and establishes a 172,000-acre preserve system in southwestern San Diego County. The MSCP covers 85 plant and animal species and 23 vegetation communites. Agencies participating in the MSCP include the County, other local jurisdictions, the U.S. Fish and Wildlife Service (USFWS) and the California Department of Fish and Game (CDFG). Local jurisdictions and special districts implement their respective portions of the MSCP Plan through Subarea plans, which describe specific implementing mechanisms for the MSCP. The combination of the subregional MSCP Plan and Subarea plans serve as a Multiple Species Habitat Conservation Plan (HCP) pursuant to Section 10(a)(1)(B) of the Federal Endangered Species Act (FESA), the Natural Community Conservation Planning (NCCP) Program pursuant to the California NCCP Act of 1991 and the California Endangered Species Act (CESA). Although the TRVRP is partially owned and fully operated by the County, the property is covered under the City of San Diego's Subarea Plan.

The Subarea Plan forms the basis for the Implementing Agreement, which is the contract between the USFWS, CDFG, and the City of San Diego pursuant to FESA and CESA. The agreement ensures implementation of the plan and qualifies as a stand-alone document to implement the City's portion of the MSCP Preserve. MSCP-covered species are included in an Incidental Take Authorization issued to the City by the USFWS and CDFG as part of the City's MSCP Subarea Plan.

The City of San Diego MSCP Subarea Plan (City of San Diego 1997) encompasses 206,124 acres within the MSCP Subregion. Within this area, the City has delineated a 56,831 acre Multiple Habitat Planning Area (MHPA) for the purpose of protecting critical sensitive biological resources. The MHPA, which

makes up the preserve system for the MSCP, is being assembled and managed for biological resources. The Tijuana Estuary/River Valley was identified as a Core Resource Area: an area with a high concentration of sensitive biological resources, which, if lost, could not be replaced or mitigated elsewhere. This region supports one of the most important wetland systems in the County, and the City proposes to preserve approximately 94 percent of the Valley core area within the entire MHPA. To achieve its conservation goals, the Subarea Plan encourages the restoration of the Tijuana River Valley to a natural floodplain that contains appropriate habitats for endangered, threatened, and other covered species and vegetation communities.

Primary concerns for the Valley, including the TRVRP, include: management of land use adjacent to covered species habitat; water quality; illegal dumping of waste; vandalism; non-sustainable agriculture; invasive species introduction and control; illegal immigration; habitat restoration; excavation activities; flood control; and maintenance of human use areas. Under the City of San Diego MSCP Subarea Plan, explicit management policies and directives have been outlined for the Tijuana River Valley to address these concerns (MSCP 1997). Guidelines that pertain specifically to the MHPA within the Valley include the following:

(a) Maintain existing reserve (estuary) and park uses,
(b) Maintain buffers around all wetland areas,
(c) Maintain existing agricultural uses on Spooner's Mesa, with the long-term goal of phased restoration to coastal sage scrub, maritime succulent scrub, or native grassland habitat,
(d) Maintain agricultural use on County-owned lands, with the long-term goal of restoration to native vegetation where possible, consistent with the County's Management Framework Plan, and
(e) Retain and enhance, where possible, existing riparian habitat along the Tijuana River.

## Physical and Climatic Conditions

### Geology and Soils

TRVRP consists of fill, alluvium, recent and old alluvial fan deposits, and terrace deposits. These valley soils are characterized by varying graded fines consisting of coarse sands with medium to low amounts of fines (silts and clays). Rocky zones are also found in these alluvial deposits, consisting of large amounts of gravels, cobbles, and localized boulders. Higher elevations within the Tijuana River Valley have conglomerates consisting of San Diego Formation materials. Given the nature of the soil and saturation of the area by the Tijuana River, the Proposed Project area is subject to liquefaction and settlement due to ground shaking from an earthquake.

In October 2004, a subsurface geological exploration was conducted and soil samples were collected at six locations within TRVRP. The primary goal of this

analysis was to characterize soils in the area with a particular emphasis on assessing habitat restoration potential from a geologic and soil perspective. These results indicate that the soil has fairly elevated alkalinity levels with low nitrogen, phosphorus, potassium and iron and pH levels are generally high. Most of the other analytical results indicate low to moderate levels except for isolated locations with elevated iron, manganese, copper, magnesium, and zinc.

TRVRP is subject to earthquakes that would have the potential to damage facilities. Primary earthquake hazards include damage from ground displacement along a fault zone, severe ground shaking, and induced secondary hazards such as liquefaction and rapid differential settlement.

The alluvial basins in the TRVRP have insufficient thickness or volumes of silt and clay to be highly vulnerable to subsidence due to dewatering. Therefore, the risk of subsidence is considered to be negligible.

No operating mines have been identified TRVRP.

**Geologic Setting**

The Valley is west of the Peninsular Ranges in the relatively stable Coastal Plain province of San Diego County. Over the last 75 million years, thick sequences of Cretaceous and Tertiary sedimentary rocks were deposited by ancient rivers and seas to form the coastal plain. These sedimentary sequences record the geological evolution of western North America, starting with the trench-arc system that generated magmas of gabbro, tonalite, and granodiorite composition 1997. By Upper Cretaceous time, volcanic activity has ceased and the coastline was dissected into short, steep drainages that produced enormous debris fans and slides.

By Eocene time, a subtropical climate and periods of higher rainfall supported coastal rainforests and a large delta system. Braided rivers carried cobbles and boulders from hundreds of kilometers inland to the coast, filling the old Cretaceous canyons. Then from the late middle Eocene to the Oligocene, the climate became coller and drier and the semi-arid grasslands replaced the tropical rainforests. These ecological changes reflect the northwards drift of the North American plate and the change from a warm tropical climate to a cool temperate one.

By the middle Miocene, volcanism resumed on the Continental Borderland to the east, in the Los Angeles Basin to the north, and in Baja California to the south of the Coastal Plain while tectonic processes caused great blocks of lithosphere to be upturned, compressed, and folded. However, the Coastal Plain itself remained relatively quiet; sandstone and ash from distant volcanism mixed with coarse local dentritus to accumulate as shallow lacustrine and fluvial deposits.

During the Pliocene, the coastal area began to subside and ocean waves and

nearshore currents reworked Eocene and Miocene deposits to produce a complex sequence of nearshore conglomerates and sandstone. During the Pleistocene, alternating glacial periods and tectonic uplift due to movement along the San Andreas Fault caused sea levels to rise and fall, exposing and submerging the coastline episodically. Marine terraces were cut when relative levels of land and sea remained still fro a few thousand years.

Today, tetonic processes have raised ancient marine rocks up to elevations around 900 feet above sea level and ancient river deposits as high as 1,200 feet. In the southwestern part of San Diego County, the La Nacion and Rose Canyon fault zones have dissected the sedimentary sequences into distinct fault blocks.

## Climate

The prevailing winds and weather in this locale are tempered by the Pacific Ocean, with the result that summers are cool and winters warm in comparison with other places along the same general latitude. Temperatures of freezing or below have rarely occurred since the record began in 1871, but hot weather, 90 degrees Fahrenheit (˚F) or above, is more frequent.

Dry easterly winds sometimes blow in the vicinity for several days at a time, bringing temperatures in the 90s and at times even in the 100s.

There have been relatively few days on which 100 ˚F or higher was reached. As these hot winds are predominant in the fall, highest temperatures occur in the months of September and October. Records show that over 60 percent of the days with 90 ˚F or higher have occurred in these two months. High temperatures are almost invariably accompanied by very low relative humidities, which often drop below 20 percent and occasionally below 10 percent.

A marked feature of the climate is the wide variation in temperature within short distances. In the river valley daytimes are much warmer in summer and nights noticeably cooler in winter, and freezing occurs much more frequently than in the City of San Diego. Although records show unusually small daily temperature ranges, only about 15 degrees between the highest and lowest readings, a few miles inland these ranges increase to 30 degrees or more

Strong winds and gales associated with Pacific, or tropical storms, are infrequent due to the latitude. The seasonal rainfall is approximately 10 inches.

## Hydrology

The Tijuana River Watershed is a binational watershed on the westernmost portion of the U. S. - Mexico border. The watershed encompasses approximately 1,700 square miles ($mi^2$) divided into approximately 1245 $mi^2$ (65 percent) in Mexico and 455 $mi^2$ (35 percent) in the U. S. The basin contains three surface water reservoirs; various flood control works, and the Tijuana National Estuarine Research Reserve (TNERR). The major drainages include Cottonwood and

Campo creeks in the US, and the Rio Las Palmas system in Mexico. Annual precipitation varies from less than 11 inches to 25 inches farther inland near the Laguna Mountains.

The Tijuana River watershed includes eight hydrological areas: the Tijuana Valley, Potrero, Barrett Lake, Monument, Morena, Cottonwood, Cameron, and Campo. Runoff is captured by Morena Reservoir and Barrett Lake on Cottonwood Creek. Although discharges from the Tijuana River account for only a small percentage of total gauged runoff to the Southern California coastal ocean, it contains the highest concentrations of suspended solids among the eight largest creeks and rivers in Southern California. Surface water quality has been affected primarily by runoff from Mexico while ground water contamination has occurred as a result of seawater intrusion and waste discharges.

The Tijuana Estuary located to the west of TRVRP is one of the largest and most studied wetlands in the southern California, and like the western part of TRVRP, is part of the National Estuarine Research Reserve. It is also part of the National Wildlife Refuge system.

# EXISTING CONDITIONS

The property is currently under the management of DPR. With the certification of the Trails and Habitat Enhancement Plan EIR, an official network of trails and US Customs and Border Protection (CBP) roads will be constructed. The trails are used by hikers, equestrians, and bicyclists. In addition, there are active recreational areas within the TRVRP. These active sites consist primarily of ball fields and community garden. Biological, cultural, and paleontological resources surveys were conducted in 2004 during the preparation of the technical studies for the TRVRP Trails and Habitat Enhancement Project EIR. The results of these surveys were used in the preparation of this ASMD (Appendix C of EIR). These documents can be viewed on the DPR website www.sdparks.org.

## BIOLOGICAL RESOURCES

TRVRP ASMD presents an opportunity to maintain and further restore one of the largest tracts of preserved, high quality, native/semi-native habitats within the region. Natural habitats, such as those found within TRVRP, have historically been destroyed or damaged by agriculture and urban development. Adding to its biological value, TRVRP supports several sensitive floral and faunal species, and functions as a significant biological resource core area.

The Valley is a unique area containing large, contiguous blocks of high quality habitat that support numerous sensitive plant and animal species. For example, riparian areas within the TRVRP provide habitat for three federally endangered birds: the light-footed clapper rail (*Rallus longirostris levipes*), the southwestern

willow flycatcher (*Empidonax traillii extimus*), and the least Bell's vireo (*Vireo bellii pusillus*), while upland areas that support Diegan coastal sage scrub provides foraging and nesting habitat for the federally threatened coastal California gnatcatcher (*Polioptila californica californica*). Other onsite vegetation communities include mule fat scrub, chaparral, maritime succulent scrub, freshwater marsh, native and non-native grassland, and disturbed areas. As stated in the Trails and Habitat Enhancement EIR, vegetation communities are thought to support 40 special status plant species and 56 special status animal species.

The TRVRP is critical to wildlife because it is part of the Pacific Flyway, which provides foraging and breeding habitat for many migrating bird species. Because of its importance to wildlife, the area has been designated a biological resource core area in the City of San Diego's MSCP, and lies almost entirely within the MHPA. Designated Federal and State open space located adjacent to the TRVRP includes: the Tijuana Slough National Wildlife Refuge (TSNWR) and Border Field State Park.

However, the Valley also supports areas that have been subjected to human disturbance for decades. These disturbances have resulted in the loss of native habitat, negative impacts to water quality, compaction of native soils, accumulation of trash, erosion and sedimentation. The quality of water in the Tijuana River, particularly water from Mexico, is often heavily impacted by sediments, pollution, trash and debris. Poor water quality has resulted in numerous beach closures just west of the TRVRP. The TRVRP Trails and Habitat Enhancement Project and implementation of this ASMD will help reduce these disturbances by closing off unnecessary trails, restoring habitat, and educating the public about the importance of open space conservation.

## Vegetation Communities

A total of 16 vegetation communities were identified and mapped within the TRVRP (Exhibit 3) (ERA 2004). Vegetation communities were classified according to the MSCP-modified Holland classification system (Table 1). The classification system has a numeric coding system for distinct terrestrial vegetation communities that can be used for land management purposes. The numeric coding is a system used to group similar habitat types. Each of the following vegetation communities and habitat types include the MSCP Holland code in parenthesis. The communities are presented below in the order of the percentage of total cover in the TRVRP. Each vegetation community description consists of a general characterization, including dominant plant species and community subtypes, acreage, and locations within TRVRP. Community subtypes are included to provide information about areas that are dominated by a single plant species or that show significant disturbance.

## Riparian Habitats

### *Southern Cottonwood-Willow Riparian Forest (354 acres)*

Southern cottonwood-willow riparian forest is the most extensive community type within the TRVRP, accounting for 21.4 percent of the total vegetative cover. Southern cottonwood-willow riparian forest occurs along major drainage courses throughout the Valley. This community is characterized by stands of Fremont cottonwood (*Populus fremontii*), Gooding's black willow (*Salix goodingii*) and arroyo willow (*Salix lasiolepis*), which form a closed canopy, winter-deciduous riparian forest community. The understory is typically composed of shrubby arroyo willows and mule fat (*Baccharis salicifolia*). This community frequently occurs on overflow lands along rivers and streams, where the dominant species require moist, bare mineral soil for germination and establishment. This is provided after floodwaters recede, leading to uniform-aged stands of cottonwoods and willows. Giant reed (*Arundo donax*), a highly invasive non-native species, is present in colonies throughout the Valley, mainly at the edge of the riparian canopy. The riparian woodland community within the TRVRP also includes invasive exotic tamarisk (*Tamarix* spp.) and small amounts of tree tobacco (*Nicotiana glauca*).

### *Mule Fat Scrub (292 acres)*

Mule fat strongly dominates this tall, open, herbaceous riparian scrub community. Other species in this scrub habitat are broom baccharis *(Baccharis sarothroides)* and coyote brush (*Baccharis pilularis*). This community is maintained by frequent flooding, without which most stands would succeed to cottonwood or sycamore dominated riparian forests or woodlands. Mule fat scrub is often a buffer between southern willow scrub or southern cottonwood-willow riparian forest and dirt roads and trails. In other areas of the TRVRP, mule fat scrub appears to transition to non-native grassland habitats dominated by non-native garland chrysanthemum (*Chrysanthemum coronarium*) in areas outside the immediate river channel. This association is likely a function of the higher elevations in these areas. Mule fat often occurs in slightly higher, drier conditions than willow scrub or riparian forests. Mule fat scrub was found near the margins of the riparian habitat within the TRVRP and accounts for approximately 17.65 percent of the total TRVRP vegetative cover.

#### *Terrestrial Habitats*

### *Diegan Coastal Sage Scrub, coastal form (225 acres)*

Diegan coastal sage scrub occurs along the TRVRP's southern edge along the mesa slopes near the U.S./Mexican border. This series is dominated by Coastal sagebrush (*Artemisia californica*) and California buckwheat (*Eriogonum fasciculatum*), together with laurel sumac (*Malosma laurina*) and white sage (*Salvia apiana*). These species are primarily low growing, soft-woody subshrubs

(<1m) that are most active in winter and early spring. Most of these species are drought-deciduous.

Coastal sage scrub (CSS) is a highly variable community and is often broken into subassociations based on dominant species cover. Different subassociations provide varying qualities of habitat for sensitive wildlife species.

The Diegan coastal sage scrub community represents approximately 13.61percent of the vegetative cover within the TRVRP. Within the approximately 225.17 total acres of CSS cover, five separate subassociations were identified and are listed below.

**Sagebrush-Buckwheat Dominated CSS (173 acres)**

Coastal sagebrush and California buckwheat account for at least 50percent of the cover in this community. This is the most dominant type of CSS habitat within the TRVRP covering approximately 172.95 acres along the mesa slopes (approximately 77percent of the total CSS in the survey area).

**Viguiera-Dominated CSS (29 acres)**

San Diego County viguiera (*Viguiera laciniata*) accounted for approximately 20-30percent of the vegetative cover in this subassociation. The second most common CSS type, it is typically present in large patches along the western slope of Spooner's Mesa, and the upper slopes of Smuggler's Gulch, and accounts for approximately 29.32 acres (13percent) of the total CSS in the survey area.

**Goldenbush-Dominated CSS (13 acres)**

This subassociation is characterized by monotypic stands of coastal goldenbush (*Isocoma menziesii*) and was mostly found in flat areas on the valley floor northwest of Spooner's Mesa that had been heavily disturbed. Goldenbush CSS accounts for approximately 12.73 acres (approximately 6percent of the total CSS in the survey area).

**Coyote Bush-Dominated CSS (10 acres)**

This open canopy community is dominated by coyote bush (*Baccharis pilularis*) and broom baccharis (*Baccharis sarothroides*) with very little understory. This habitat type was observed on a small portion of the survey area, approximately 9.74 acres (4percent of the total CSS), and is often found in areas subject to high frequency disturbance at the east end of the east mesa.

**Monkeyflower-Dominated CSS (0.43 acre)**

Sticky monkeyflower (*Mimulus aurantiacus*) accounts for approximately 75 percent of the total cover on a single, 0.43-acre, north-facing slope east of Smuggler's Gulch. Associated species include coastal sagebrush and lady fingers (*Dudleya edulis*). Monkeyflower-dominated CSS therefore represents only 0.02 percent of the total CSS.

### *Non-Native Grassland (163 acres)*

Non-native annual grasses dominate many areas throughout the Tijuana River Valley. Non-native annual grasslands are dominated by wild oat (*Avena fatua*), ripgut brome (*Bromus diandrus*), foxtail chess (*Bromus madritensis ssp. rubens*), rye-grasses (*Lolium* spp), and fescues (*Vulpia* spp.), with non-native grasses comprising 50percent or more of the cover during the growing season. Approximately 163.09 acres of non-native grassland were identified within the study area (9.86percent of total cover).

### *Disturbed Habitat (208 acres)*

Disturbed habitat is any land on which the native vegetation has been significantly altered by construction, or other land-clearing activities, and the species composition and site conditions are not characteristic of the disturbed phase of one of the plant associations within the study region.

Disturbed habitats are typically dominated by invasive non-native plant species. At least seven invasive plant species are present and represent a significant threat to the Valley ecology and hydrology. These include giant reed, tamarisk, garland chrysanthemum, tree tobacco, crystalline iceplant (*Mesembryanthemum crystallinum*), castor bean (*Ricinus communis*), and cocklebur. The non-native vegetative community has the lowest habitat value of all vegetative cover types in the TRVRP. A total of 207.83 acres (6.77percent of cover within TRVRP) of disturbed habitat occurs in the study area. Approximately 95.83 acres of garland chrysanthemum monoculture has been mapped in the TRVRP, as well as 112.0 acres of iceplant. The most prevalent invasive exotic species are described below.

**Giant reed** is an exotic species that can wholly displace large areas of riparian forest and can significantly alter drainage patterns within a watershed. This bamboo-like plant can grow as tall as 30 feet and spreads by rhizomes and fragments that can survive and replant themselves after being exposed to extreme conditions. Currently, giant reed is restricted to a series of dense patches along the edges of and within the southern willow-cottonwood riparian forest and southern willow scrub communities, as well as three stands within a former dump area in the northwestern portion of the TRVRP.

**Tamarisk**, a Eurasian native, was introduced into Southern California and Arizona in the early 1880's as a stream bank stabilizer and ornamental shrub. . Tamarisk (and giant reed) can out-compete native riparian vegetation such as cottonwoods and willow, while providing a significantly inferior resource for wildlife (Larmer 1998). As the native plants disappear so do the animals that depend on them, such as the grosbeak and least Bell's vireo. Stands of tamarisk are commonly found throughout the TRVRP mixed into the mule fat scrub community or bordering the mule fat scrub and southern willow scrub and cottonwood-willow riparian communities.

**Garland chrysanthemum** is a non-native garden escapee that occurs in fallow agricultural fields on the top of Spooner Mesa. In some areas, garland chrysanthemum is nearly 100 percent of the vegetative cover immediately adjacent to high quality coastal sage scrub and riparian habitats. In addition to chrysanthemum, non-native weedy herbs including wild radish (*Raphanus sativus*), black mustard (*Brassica nigra*) Russian thistle (*Salsola tragus*), fennel (*Foeniculum vulgare*), and cocklebur (*Xanthium strumarium*) are present. The areas dominated by garland chrysanthemum are highly disturbed and will require significant restoration efforts.

**Tree tobacco** is a naturalized exotic member of the nightshade family from South America. It can be very aggressive and is poisonous if ingested in large quantities. It is typically scattered through the TRVRP in disturbed areas at higher elevations than the tamarisk.

**Crystalline iceplant,** originally from South Africa, has colonized many areas of coastal habitat in North America at the expense of native plants. Within TRVRP, it occurs in large patches in the central western portion of the site, adjacent to riparian habitats. Because iceplant has an exceptional ability to absorb moisture from the soil, it can outcompete many native species for water. Additionally, the accumulation of released salts can retard the growth or establishment of native species.

**Castor bean** is a large perennial shrub with toxic dark green to reddish-purple leaves. Castor bean can grow up to 15 feet tall and produces large, globe shaped spiny capsular fruit. The seeds are highly toxic and can cause contact dermatitis with contact.

**Cocklebur**, a smaller, poisonous annual with barrel-shaped spiny burs, can dominate disturbed low lying river and side channels and floodplains. The seeds of these species can be spread by water and wind and the sandy and gravelly soils of the TRVRP are conducive to their spread, especially in areas of disturbance. Cocklebur and castor bean often dominate riparian habitats.

### *Southern Willow Scrub (153 acres)*

Several willow species (*Salix lasiolepis*, *Salix exigua, Salix lasiandra* and *Salix goodingii*) dominate this dense, broad-leafed, winter-deciduous riparian thicket community, with scattered emergent Fremont's cottonwood and California sycamore (*Platanus racemosa*). Most stands are too dense to allow much understory development. This early seral type requires repeated flooding to prevent succession to southern cottonwood-sycamore riparian forest. Southern willow scrub was identified along the slightly lower elevation margins of the southern cottonwood-willow riparian forest, especially along the northeastern portion of the TRVRP's riparian corridor. It was distinguished from the other communities primarily by the presence of young arroyo willow and some smaller cottonwood trees interspersed with mule fat. This community is present on 153.41 acres within the survey area (9.28percent of total TRVRP vegetation).

### *Field/Pasture (104 acres)*

Agriculture using low intensity equipment and manual labor still persists within the Valley outside the most regular water channels but well within the FEMA 100-year floodway. This vegetation type is primarily found north of the base of Spooner's Mesa and south of the Tijuana River and in fields in the north central portion of the TRVRP north of the river. There are active and inactive fields throughout this area totaling approximately 103.64 acres (6.27percent of TRVRP) as of the summer of 2004, when the spring survey was completed.

Approximately 240-acres of land have been leased for agricultural use. The uses include Amsod (turf growers) and row-crops such as fruits and vegetables and alfalfa and hay.

### *Urban/Developed (84 acres)*

Developed areas of the Valley include single family residences, small agricultural enterprises, as well as equestrian stables, fenced pastures, and barns. Where present, stables and residences have disturbed nearly 100 percent of the native habitat that formerly existed. Urban/Developed areas included paved roads (e.g. Dairy Mart Road, Monument Road, Hollister Street, and Saturn Boulevard), the numerous dirt roads and trails throughout the study area, and disturbances associated with the Mexican border (e.g., border fencing, patrol roads, and temporary/permanent lighting). CBP patrols regularly drive and walk most of these roads and trails in the course of their duties within and outside of the TRVRP. While most of the urban/developed cover type is dominated by bare ground, some of this cover type may be well vegetated. For example, residential areas that have sufficient landscape tree and shrub cover to meet the criteria for a forest community type have been placed in the urban/developed category. Throughout the entire survey area, urban developed areas account for approximately 83.85 acres (5.07percent of the total cover in the TRVRP).

### *Row Crops (57 acres)*

Row crops are areas currently utilized for more intensive agriculture than field/pasture areas. Within the survey area, this habitat type occurs along the northern boundary of the Tijuana River Valley near Hollister Street Bridge, at the base of Spooner's Mesa north of Monument Road, and just south of the Tijuana River on the eastern side. Row crops in the area are actively farmed, mostly for edible flowers, lettuces and some vegetables. This vegetation type comprises approximately 57.19 acres (3.46percent of TRVRP), and is mixed with smaller patches of field/pasture.

### *Southern Mixed Chaparral (39 acres)*

Within the TRVRP, this community is dominated by laurel sumac, lemonade berry (*Rhus integrifolia*) and toyon (*Heteromeles arbutifolia*). This community intergrades regularly with the adjacent CSS and maritime succulent scrub habitats along portions of the northern and eastern mesa slopes (where there is less fog drip) in the southern portion of the TRVRP and shares many of the understory components of both communities. Approximately, 39.27 acres was identified as southern mixed chaparral, (2.37percent of the total vegetative cover in the TRVRP).

### *Maritime Succulent Scrub (30 acres)*

Maritime succulent scrub (MSS) is classified as a low, open cover scrub community, with only 25-75percent ground coverage. Drought-deciduous shrubs, accompanied by various stem and leaf succulents including cacti, dominate this community. The ground is more or less bare between the shrubs. Within the survey area this habitat is dominated by cliff spurge (*Euphorbia misera*), bushrue (*Cneoridium dumosum*), bladderpod (*Isomeris arborea*) and several species of cactus, including San Diego barrel cactus (*Ferocactus viridescens*) and golden-spined cereus (*Bergerocactus emoryii*). The community is confined to the southwest facing slopes of the upper bluffs of Spooner's Mesa in the southwest corner of the TRVRP, adjacent to the NERR. Approximately 30.17 acres of maritime succulent scrub were identified within the survey area (1.82percent).

### *Southern Maritime Chaparral (22 acres)*

Wart-stemmed ceanothus (*Ceanothus verrucosus*) is the dominant plant in this community that is found on top mesa east of Smuggler's Gulch and covers 21.80 acres (1.32 percent of the total) within the study site. Southern maritime chaparral supports several rare plant species including Baja California birdbush (*Ornithostaphylos oppositifolia*), which was observed exclusively in this community.

### *Open Water (12 acres)*

Open water habitat consists of standing water generally associated with ranching, agricultural and former sand and gravel mining practices. These ponds remain full throughout the year, either because they have been excavated to depths below the seasonal low water table or from spring runoff augmented by pumping. Vegetation includes aquatic species such as fennel-leaved pondweed (*Potamogeton pectinatus*), common water nymph (*Najas guadalupensis*), and hornwort (*Ceratophylum demersum*); emergent hydrophytes including southern cattail (*Typha domingensis*), California bulrush (*Scirpus californicus*), tall flatsedge (*Cyperus eragrostis*), knotgrass (*Paspalum sp.*), and creeping spikerush (*Eleocharis palustris*); and terrestrial species such as swamp pricklegrass (*Crypsis schoenoides*), toad rush (*Juncus bufonius*), hyssop loosestrife (*Lythrum hyssopfolium*), and cocklebur (*Xanthium strumarium*).

Historically, the Tijuana River has meandered from north to south within the river valley. Currently, the Tijuana River flows within a 'main channel' situated in the center of the valley. That main channel is maintained by the City of San Diego. In 1993, a flood estimated at 35 cubic feet per second (cfs) created a new channel to the north of the main channel. An erodable earthen plug prevents water from flowing in the northern channel and maintains all flows within the main channel.

The main open water channel of the Tijuana River is approximately 40 feet wide as it passes under Hollister Street. However, for much of the year, flow is underground through the alluvium in substantial sections of the Tijuana River Valley. The water table typically stays near the ground surface as indicated by young willows along the river channel and the occurrence of a sporadic understory of herbaceous hydrophytic vegetation.

There are two main ponds (at the northeastern portion of the TRVRP near Dairy Mart Road and Servanado) and three smaller ponds (at the northwestern portion of the TRVRP between the main and northern side-channel of the Tijuana River). These ponds cover approximately 11.8 acres within the TRVRP (0.71percent of the total).

### *Eucalyptus Woodland (5 acres)*

Eucalyptus groves have been extensively planted throughout the State since their introduction in the late 1800s (Santos 1997). Overstory composition is typically limited to one, or sometimes a few, species of the genus. Few native overstory species are present within eucalyptus planted areas. Eucalyptus occurs in California, usually at elevations below 1,600 feet, from San Diego and Imperial counties in the south, to Shasta in the north (ERA 2004). Most eucalyptus, however, is found around populated areas of southern and central California.

Within the study site, there is a total of 4.60 acres of eucalyptus woodland (0.28percent of TRVRP). Eucalyptus groves are small and spread throughout the low-lying areas of the TRVRP. The understory consists almost entirely of leaf litter and sapling eucalyptus trees.

### *Freshwater Marsh (2 acres)*

This series is dominated by perennial, emergent monocots up to 16 feet tall, often forming completely closed canopies. Plants grow in quiet sites permanently flooded by fresh water. Prolonged saturation permits accumulation of deep, peaty soils.

Within the TRVRP, freshwater marsh occurs primarily along a portion of the northern side-channel of the Tijuana River, and around the edges of ponds. The dominant species are cattails (*Typha* sp.), bulrushes (*Scirpus* sp.) and sedges (*Carex* sp.). These areas are subject to high flow during the wet season, which creates variable regions of open water near the center of the marsh. Approximately 2.22 acres of freshwater marsh were identified within the survey area (0. 13percent of total cover).

### *Native Grassland (.06 acre)*

The native grassland community found at TRVRP is dominated by native perennial grasses such as purple needlegrass (*Nassella pulchra*). Total occurrence of this community is low in the Park (much less than 0.1percent). A small area of grassland (0.06 ac), however, is markedly dominated by native species. It is located in the western end of the TRVRP within a large area of viguiera dominated coastal sage scrub. In general, native grasses and associated annual flowers were found in low numbers throughout the TRVRP, integrating with chaparral and scrub communities. This community was dominated by purple needlegrass, melic grass (*Melica imperfecta*), and associated forbs including golden yarrow (*Eriophyllum confertiflorum*), miner's lettuce (*Claytonia perfoliata*), common eucrypta (*Eucrypta chrysanthemifolia*), wind poppy (*Stylomecon heterophylla*) and Chinese houses (*Collinsia heterophylla*).

Table 1

***VEGETATION COMMUNITIES WITHIN THE TIJUANA RIVER VALLEY REGIONAL PARK***

| Holland/ Oberbauer Vegetation Communities[1] | Category[2] | Acres | Percent Cover (%) in TRVRP |
|---|---|---|---|
| **Southern Cottonwood-Willow Riparian Forest (61330)** | **Riparian** | **353.92** | **21.40%** |
| *Disturbed Southern Cottonwood-Willow Riparian Forest* | *Riparian* | *0.8* | |
| **Mule Fat Scrub (63310)** | **Riparian** | **291.87** | **17.65%** |
| *Disturbed Mule Fat Scrub* | *Riparian* | *21.07* | |
| **Diegan Coastal Sage Scrub (Coastal Form) (32510)** | **Coastal Sage Scrub** | **225.17** | **13.61%** |
| *Sagebrush-Buckwheat Dominated CSS* | *Coastal Sage Scrub* | *172.95* | |
| *Viguiera Dominated CSS* | *Coastal Sage Scrub* | *29.32* | |
| *Disturbed CSS* | *Coastal Sage Scrub* | *15.15* | |
| *Goldenbush Dominated CSS* | *Coastal Sage Scrub* | *12.73* | |
| *Coyotebush Dominated CSS* | *Coastal Sage Scrub* | *9.74* | |
| *Monkeyflower Dominated CSS* | *Coastal Sage Scrub* | *0.43* | |
| **Non-Native Grassland (42026)** | **Non Native Grassland** | **163.09** | **9.86%** |
| **Southern Willow Scrub (63320)** | **Riparian** | **153.41** | **9.27%** |
| *Disturbed Southern Willow Scrub* | *Riparian* | *1.61* | |
| **Disturbed Habitat (11300)** | **Non-Native** | **112** | **6.77%** |
| *Chrystanthemum subunit* (42026.01) | *Non-Native* | *95.83* | |
| **Field/Pasture (18310)** | **Non-Native** | **103.64** | **6.27%** |
| **Urban/Developed (12000)** | **Non-Native** | **83.85** | **5.07%** |
| **Row Crops (18320)** | **Non-Native** | **57.19** | **3.46%** |
| **Southern Mixed Chaparral (37120)** | **Chaparral** | **39.27** | **2.37%** |
| *Disturbed Southern Mixed Chaparral* | *Chaparral* | *5.44* | |
| **Maritime Succulent Scrub (32400)** | **Coastal Sage Scrub** | **30.17** | **1.82%** |
| *Disturbed Maritime Succulent Scrub* | *Coastal Sage Scrub* | *1.33* | |
| **Southern Maritime Chaparral (37C30)** | **Chaparral** | **21.8** | **1.32%** |
| *Disturbed Southern Maritime Chaparral* | *Chaparral* | *1.16* | |
| **Open Water** | **Wetland** | **11.8** | **0.71%** |
| **Eucalyptus Woodland (11100)** | **Non-Native** | **4.6** | **0.28%** |
| **Freshwater Marsh (52400)** | **Wetland** | **2.22** | **0.13%** |
| **Native Grassland (42100)** | **Grassland** | **0.06** | **0.00%** |

Note: italicized communities are subunits of the community type listed above

[1] Vegetation Communities are listed in order of percent cover within TRVRP with Holland/ Oberbauer code included

[2] Categories were chosen by major habitat types

## Sensitive Plant Species

During the preparation of the Trails and Habitat Enhancement Project EIR, surveys for sensitive plant species were conducted. Of the 39 species included in the focused surveys, 12 were observed during the focused surveys conducted in 2007 (Exhibit 4). They included San Diego sagewort (*Artemisia palmeri*), golden spined cereus (*Bergerocactus emoryi*), wart-stemmed ceanothus (*Ceanothus verrucosus*), sea-dahlia (*Coreopsis maritima*), cliff spurge (*Euphorbia misera*), San Diego barrel cactus (*Ferocactus viridescens*), Southwestern spiny rush (*Juncus acutus* ssp. *leopoldii*), Nuttall's scrub oak (*Quercus dumosa*), Baja California birdbush (*Ornithostaphylos oppositifolia*), ashy spike-moss (*Selaginella cinerascens*), Woolly seablight (*Suaeda taxifolia*) and San Diego County viguiera (*Viguiera laciniata*). In addition to these twelve species, one population of Orcutt's pincushion (*Chaenactis glabriuscula* var. *orcuttiana*), a California Native Plant Society (CNPS) list 1B species was observed on site. Each of these species is addressed below in more detail.

### *San Diego sagewort (Artemisia palmeri)*

San Diego sagewort, in the family Asteraceae, is a CNPS List 4 species. It is a deciduous shrub that occurs in chaparral, coastal scrub, riparian forest, riparian scrub, and riparian woodland (sandy, mesic) habitats. This species is found at elevations of 49-3000 feet and has a blooming period of May to September.

A single population of approximately 250 individuals was identified within the riparian area of the TRVRP (Exhibit 4). Associated species included black willow, arrow weed (*Pluchea sericea*), California rose, southwestern spiny-rush, and tarragon.

### *Golden spined cereus (Bergerocactus emoryi)*

Golden-spined cereus, a CNPS List 2 species in the family Cactaceae, is a stem succulent, that flowers May through June. The elevation ranges from 9 – 1300 feet in habitats of closed-cone coniferous forest, chaparral, and coastal scrub (sandy).

Twenty-two distinct patches of golden spined cereus were observed on south-facing slopes of the bluffs in the southwest corner of the TRVRP. Occurrences of this species varied in number of individuals from a few dozen stems to several hundred stems. Associated species included cliff spurge, bushrue, bladderpod, San Diego barrel cactus, and fish-hook cactus.

### *Wart-stemmed ceanothus (Ceanothus verrucosus)*

Wart-stemmed ceanothus of the family Rhamnaceae is a CNPS List 2 species. This evergreen shrub flowers from December through April in chaparral habitats from 1-1250 feet.

Approximately 65 individuals were identified on the mesa tops east of Smuggler's Gulch. Associated species included chamise, Mission manzanita, Baja California birdbush and toyon. Wart-stemmed ceanothus was one of the dominant plants in the fairly open chaparral in which it was found.

### *Orcutt's pincushion (Chaenactis glabriuscula var. orcuttiana)*

Orcutt's pincushion is a member of the Asteraceae family. It is an annual herb classified as a CNPS List 1B species. It is found in coastal bluff scrub and coastal dune habitats and flowers January to August.

One small polygon with about 50 plants was observed on the bluffs adjacent to Smuggler's Gulch. Associated species included cliff spurge (*Euphorbia misera*), Bushrue (*Cneoridium dumosum*), California sagebrush (*Artemisia californica*) and San Diego County Viguiera (*Viguiera laciniata*).

### *Sea-dahlia (***Coreopsis maritima***)*

Sea-dahlia in the family Asteraceae is a perennial herb found in primarily north facing coastal scrub habitats of 16 – 500 feet in elevation. The blooming period is March through May. It is a CNPS List 2 species.

Eighteen (18) distinct polygons were mapped during the focused surveys, with a total of approximately 2,500 plants. All plants were observed on north facing slopes or on the edges of the mesa adjacent to a north facing slope. Habitat association was variable, sea-dahlia was found in Diegan coastal sage scrub, southern maritime chaparral, southern mixed chaparral and native grassland. Associated plant species were likewise variable, but the most common associates included purple needlegrass (*Nassella pulchra*), California sagebrush (*Artemisia californica*), bushrue (*Cneoridium dumosum*), laurel sumac (*Malosma laurina*) and lemonade berry (*Rhus integrifolia*).

### *Cliff spurge (Euphorbia misera)*

Cliff spurge is a CNPS List 2 species. In the family Euphorbiaceae, cliff spurge is located primarily on south facing slopes of coastal scrub, coastal bluff scrub and Mojavean desert scrub (rocky). Elevations range from 33-1,650 feet and the blooming period is December through August.

A total of eight distinct polygons were identified within the TRVRP, containing approximately 4,900 plants. A majority of the plants were observed on south facing slopes in the southwest corner of the park. When the plant did occur on north facing slopes, it was confined to the upper portion of the slope near the bluff top. All of the mapped locations of cliff spurge occurred in the maritime

succulent scrub habitat, with one exception found in Southern maritime chaparral. Common associated plant species included coast spicebush (*Cneoridium dumosum*), California boxthorn (*Lycium californicum*), California sagebrush (*Artemisia californica*), San Diego barrel cactus (*Ferocactus viridescens*), lemonade berry (*Rhus integrifolia*), bladderpod (*Isomeris arborea*) and ladies' fingers (*Dudleya edulis*).

## *San Diego Barrel Cactus (Ferocactus viridescens)*

San Diego barrel cactus is located in chaparral, coastal scrub, valley and foothill grassland, and vernal pool habitats. This stem succulent in the family Cactaceae is a CNPS List 2 species that blooms from May through June. Elevation ranges from 10 -1,500 feet.

Seven distinct polygons were identified within the TRVRP on south facing slopes within the maritime succulent scrub habitat. These are located within the western portion of Spooner's Mesa (denoted in bright pink horizontal lines). These consist of more than one individual within each polygon. In addition, one individual was observed in the eastern portion of the CSS habitat just north of the far east viguiera polygon. This individual was found lower in elevation than the other observed polygons to the west. This species was very abundant where found, a total of approximately 7500 plants were estimated within the survey area. Associated species included California sagebrush (*Artemisia californica*), lemonade berry (*Rhus integrifolia*), bladderpod (*Isomeris arborea*), coast spicebush (*Cneoridium dumosum*), fish-hook cactus (*Mammilaria dioica*), cliff spurge (*Euphorbia misera*), wishbone plant (*Mirabilis laevis*) and ladies' fingers (*Dudleya edulis*).

### *Southwestern spiny rush (Juncus acutus ssp. leopoldii)*

Southwestern spiny rush is a CNPS list 4 species in the family Juncaceae. A rhizomatous herb, southwestern spiny rush blooms from May through June and inhabits coastal dunes (mesic), meadows and seeps (alkaline seeps), and marshes and swamps (coastal salt). The elevation ranges from 10-3,000 feet.

Approximately 220 plants were observed within the riparian forest area in six distinct polygons. This species occurred as a few individuals in openings within the riparian forest canopy, along the margins of freshwater marsh habitat. The largest stand, approximately 200 plants, was found in a large opening dominated by mule fat scrub habitat. Associated species included yerba mansa (*Anemopsis californica*), mule fat (*Baccharis salicifolia*) and needle spike-sedge (*Eleocharis acicularis* var. *acicularis*).

***Baja California birdbush (*Ornithostaphylos oppositifolia*)***

Baja California birdbush in the family Ericaceae is a CNPS List 2 species and a California candidate for state listing. The blooming period for this evergreen shrub is January through April in chaparral habitats from elevations of 180 - 2650 feet.

Seventy-eight (78) individuals of this species were found during the focused surveys. All plants were found in southern mixed chaparral or southern maritime chaparral along the mesa tops within the southeast portion of the TRVRP. Common associated species included mission manzanita (*Xylococcus bicolor*), black sage (*Salvia mellifera*), wart-stemmed ceanothus (*Ceanothus verrucosus*), and laurel sumac (*Malosma laurina*).

***Nuttall's scrub oak (Quercus dumosa)***

Nuttall's scrub oak is a CNPS List 1B evergreen shrub. In the family Fagaceae, this scrub oak inhabits closed-cone coniferous forests, chaparral, and coastal scrub/sandy, clay loam. Elevations range from 45 – 1350 feet and the blooming period is February through April.

Only one population of this species was observed during the focused surveys. A total of 11 individuals were found along the north facing slope of a small drainage in the southwest portion of the park. The habitat was southern mixed chaparral and included lemonade berry (*Rhus integrifolia*), laurel sumac (*Malosma laurina*), chamise (*Adenostoma fasciculatum*), California encelia (*Encelia californica*), and California buckwheat (*Eriogonum fasciculatum*).

***Ashy spike-moss (Selaginella cinerascens)***

Ashy spike-moss inhabits relatively undisturbed soils along dry slopes and mesas within coastal sage scrub and chaparral habitats. A member of the spike-moss family (Selaginellaceae), this species forms dense mats, which appear as an ashy grey carpet in the open spaces between shrubs.

These species was found in relatively open stands of coastal sage scrub and chaparral where soils were mostly left undisturbed. Two major groupings were mapped one on the western portion of Spooner's Mesa and the second near the eastern edge of the mesas.

***Woolly seablight (Suaeda taxifolia)***

Woolly seablight inhabits coastal bluff scrub, coastal dunes, and marshes and swamps (margins of coastal salt). This evergreen shrub in the family Chenopodiaceae is a CNPS List 4 species with a blooming period of January through December.

This species was concentrated along the western end of the artificial dikes created along the Tijuana River and in an adjacent field dominated by non-native herbaceous plant species. A total of approximately 350 plants were found in this area. Associated species included Russian thistle, crystalline iceplant, and coast goldenbush.

***San Diego County Viguiera (Viguiera laciniata)***

San Diego County viguiera in the family Asteraceae is a shrub and a CNPS List 2 species. Habitats include elevations of 180 – 2,650 feet of chaparral conditions. The blooming period is January through April.

Where this plant occurred on site, it was the dominant component of the habitat (i.e., viguiera dominated CSS). Two vegetation communities supported this species; Diegan CSS and maritime succulent scrub. Approximately 3,500 individuals were found on site. Common associated species included California sagebrush (*Artemisia californica*), bladderpod (*Isomeris arborea*), California buckwheat (*Eriogonum fasciculatum*), broom baccharis (*Baccharis sarothroides*), and California encelia (*Encelia californica*).

**Table 2**
**Target Plant Species for Focused Rare Plant Surveys**

| Scientific Name | Common Name | Habitat | Blooming Period | Federal/ State/ MSCP | CNPS Designation | Observed Onsite |
|---|---|---|---|---|---|---|
| *Adolphia californica* | California adolphia | coastal bluffs, chaparral, coastal scrub, valley foothill grassland | December - May | N/A | List 2 | No |
| *Agave shawii* | Shaw's agave | coastal bluffs, slopes, chaparral, coastal scrub, valley foothill grassland | September - May | MSCP | List 2 | No |
| *Ambrosia chenopodiifolia* | San Diego bur-sage | coastal scrub | April - June | N/A | List 2 | No |
| *Ambrosia pumila* | San Diego ambrosia | Lowlands in valleys and along edges, coastal scrub, valley and foothill grassland, vernal pools | May - October | Federally Endangered MSCP | List 1B | No |
| *Artemisia palmeri* | San Diego sagewort | chaparral, coastal scrub, riparian forest, riparian scrub, riparian woodland | May - September | N/A | List 4 | Yes |
| *Atriplex coulteri* | Coulter's saltbush | coastal bluff scrub; coastal dunes, coastal scrub, valley and foothill grasslands | March - October | N/A | List 1B | No |
| *Atriplex pacifica* | south coast saltscale | coastal bluff scrub, coastal dunes, coastal scrub | March - October | N/A | List 1B | No |
| *Atriplex parishii* | Parish's brittlescale | chenopod scrub, playas, vernal pools | June - October | N/A | List 1B | No |
| *Bergerocactus emoryi* | golden spined cereus | closed cone coniferous forest, chaparral, coastal scrub | May - June | N/A | List 2 | Yes |
| *Calandrinia maritima* | seaside calandrina | coastal bluff scrub, coastal scrub, valley and foothill grasslands | February - August | N/A | List 4 | No |
| *Camissonia lewisii* | Lewis's evening-primrose | coastal bluff scrub, cismontane woodland, coastal dunes, coastal scrub, valley and foothill grassland | March - June | N/A | List 3 | No |
| *Ceanothus verrucosus* | wart-stemmed ceanothus | dry hills, mesa, chaparral | Dec - April | MSCP | List 2 | Yes |
| *Chorizanthe procumbens* | prostrate spineflower | chamise chaparral | April - June | N/A | N/A | No |

| Scientific Name | Common Name | Habitat | Blooming Period | Federal/ State/ MSCP | CNPS Designation | Observed Onsite |
|---|---|---|---|---|---|---|
| *Clarkia delicata* | delicate clarkia | oak woodland, chaparral | April - May | N/A | List 1B | No |
| *Colubrina californica* | Las Animas colubrina | creosote bush scrub | April - May | N/A | List 2 | No |
| *Comarostaphylos diversifolia diversifolia* | summer holly | chaparral | May - June | N/A | List 1B | No |
| *Convolvulus simulans* | small- flowered morning glory | chaparral, coastal scrub, valley and foothill grassland | March - July | N/A | List 4 | No |
| *Cordylanthus maritimus maritimus* | salt marsh bird's beak | coastal dunes, marshes and swamps, coastal salt | May - October | Federally/ State Endangered MCSP | List 1B | No |
| *Cordylanthus orcuttianus* | Orcutt's bird beak | coastal scrub | March - September | MSCP | List 2 | No |
| *Coreopsis maritima* | sea dahlia | coastal scrub | March - May | N/A | List 2 | Yes |
| *Corethrogyne filaginifolia var incana* | San Diego sand aster | chaparral, coastal bluff scrub, coastal scrub | June - September | N/A | List 1B | No |
| *Deinandra conjugens* | Otay tarplant | coastal scrub, valley and foothill grasslands | May - June | Federally/ State Endangered | List 1B | No |
| *Dichondra occidentalis* | western dichrondra | chaparral, coastal scrub | March - May | N/A | List 4 | No |
| *Dudleya attenuata orcuttii* | Orcutt's dudleya | sea bluffs | May - July | N/A | List 2 | No |
| *Dudleya variegata* | variegated dudleya | chaparral, cismontane woodlands, coastal scrub, valley and foothill grasslands, vernal pools | May - June | MSCP | List 1B | No |
| *Euphorbia misera* | cliff spurge | coastal bluff scrub, coastal scrub, Mojavean desert scrub | December - August | N/A | List 2 | Yes |
| *Ferocactus viridescens* | San Diego barrel cactus | chaparral, coastal scrub, valley and foothill grasslands, vernal pools | May - June | MSCP | List 2 | No |

| Scientific Name | Common Name | Habitat | Blooming Period | Federal/ State/ MSCP | CNPS Designation | Observed Onsite |
|---|---|---|---|---|---|---|
| *Iva hayesiana* | San Diego marsh-elder | marshes and swamps | April - September | N/A | List 2 | No |
| *Juncus acutus* ssp. *leopoldii* | southwestern spiny rush | coastal dunes, meadows and seeps, marshes and swamps | May - June | N/A | List 4 | Yes |
| *Ophioglossum californicum* | California adder's tongue | chaparral, valley and foothill grassland, vernal pools | December - June | N/A | List 4 | No |
| *Opuntia parryi serpentina* | snake cholla | Diegan sage scrub | April - May | MSCP | N/A | No |
| *Ornithostaphylos oppositifolia* | Baja California birdbush | chaparral | January - April | State Candidate | List 2 | Yes |
| *Quercus dumosa* | Nuttall's scrub oak | closed-cone coniferous forest, chaparral, coastal scrub | February - April | N/A | List 1B | Yes |
| *Rosa minutifolia* | small-leaved rose | chaparral, coastal scrub | January - June | State Endangered MSCP | List 2 | No |
| *Selaginella cinerascens* | ashy spike-moss | chaparral, coastal sage scrub | N/A | N/A | N/A | Yes |
| *Senecio aphanactis* | rayless ragwort | chaparral, cismontane woodland, coastal scrub | January - April | N/A | List 2 | No |
| *Suaeda esteroa* | estuary seablight | marshes and swamps | May - June | N/A | List 1B | No |
| *Suaeda taxifolia* | wooly seablight | coastal bluff scrub, coastal dunes, marshes and swamps | January - December | N/A | List 4 | Yes |
| *Viguiera laciniata* | San Diego County viguiera | chaparral, coastal scrub | February - June | N/A | List 2 | Yes |

# Wildlife

## Amphibians

Much of the project area is dry throughout the year; however four amphibian species were observed in mesic habitat and in areas of permanent open water (Exhibit 5). These species included bullfrogs (*Rana catesbeiana)* California tree frog *(Hyla cadaverina)* Pacific chorus frog *(Hyla regilla)* western spadefoot toad (*Spea hammondii)*. Most amphibian species are adept to survive in dry areas by remaining beneath the soil in burrows or under logs or leaf litter, emerging only when temperatures are low and humidity was high.

Seasonal southern California rains often initiate the emergence and breeding behaviors of several species, particularly those that are typically dependent upon the brief availability of ephemeral surface water (e.g., western spadefoot toad). Although rainfall may prompt the emergence of many amphibian species, surface nocturnal activity can often last into early summer, as soil moisture conditions can remain high within habitat types, depending on factors such as amount of vegetative/debris cover, substrate composition, elevation, and slope aspect.

In the open water areas such as Dairy Mart ponds, ponds in the north west areas, and in freshwater areas along the river throughout the study area non-native bullfrogs were heard calling and also observed visually on the banks and in throughout the reeds along with native species such as California tree frog and Pacific chorus frog *(Hyla regilla)*. In ephemeral pools in Spooner's mesa created by depressions in the dirt roads in the TRVRP, one western spadefoot toad, a CSC and FSC species were observed at the larval (tadpole) phase of the life cycle. A focused survey was conducted for the arroyo toad (*Bufo californicus*), however, none was observed.

## Reptiles

Ten reptile species were observed both incidentally and through pitfall trap arrays and are mapped on Exhibit 5. Reptilian diversity and abundance in the TRVRP was observed to vary with plant communities. Many species were observed to prefer only one or two plant communities; however, most will forage in a variety of habitat types. Most species occurring in open areas such as the agricultural and non-native grassland areas use rodent burrows for cover and protection from predators and extreme weather conditions. Some communities in the survey area provide suitable soils for burrowing and suitable vegetation for cover. Use of the non-native grassland communities in TRVRP by reptiles is expected to vary during different times of the year. Perennial sources of water typically attract several species of snakes, although most reptiles prefer dry conditions and avoid wet areas.

Primarily in the riparian areas, incidental sightings of snakes, lizards and non-native red-eared sliders *(Pseudemys scripta elegans)* were observed. These areas are moist throughout the year and they have a high variability of vegetation abundance of prey. Lizards were the most observed followed by snakes. Coastal whiptail lizards *(Cnemidophorus tigris)*, side-blotched lizard (scientific name), western fence lizards, and another small scaled unidentified species of the genus, *Sceloporus* were observed.

Gopher snakes (*Pituophis melanoleucus*) were the most commonly observed snakes. However, glossy snake (*Arizona elegans occidentalis*), southern Pacific rattlesnake (*Crotalus viridis helleri)*, San Diego night snake (*Hypsiglena torquata*), southwestern blind snake (*Leptotyphlops humilis humilis*) and a yellow bellied racer (*Coluber constrictor mormon*) were observed. A common non-native freshwater turtle, the red-eared slider was observed in the freshwater marsh areas. Although the native, sensitive southwestern pond turtle (*Clemmys marmorata pallida)* was not observed in the Park, the red-eared slider poses a threat to its conservation. The red-eared slider is a known predator of native amphibian and reptile species and is also a competitor of resources with these native species (reference).

## Birds

The land within the TRVRP is regarded as a very unique, diverse and important avian use area. The high diversity of migrants as well as resident breeding species is quite rare in southern California, since large areas of continuous riparian habitat are so scarce in this region. As of August 2004, 144 avian species have been documented in the TRVRP. Many are considered sensitive by local, State or Federal agencies including the agricultural land and upland habitats provide good habitat for wintering and breeding raptors, while CSS habitat provides habitat for many resident passerines. Ponds and associated riparian wetlands provide habitat for other songbirds, rails, waterfowl, and shorebirds. All bird species were documented as described in the Trails and Habitat Enhancement EIR and sensitive bird species were mapped as shown inExhibit 6, except least Bell's vireo which was mapped separately (Figures 7-10).

In addition to the State and federally endangered least Bell's vireo (*Vireo bellii pusillus)*, the riparian habitat supports several species on the CDFG list of species of special concern (CSC) including the yellow warbler (*Dendroica petechia*) and the yellow-breasted chat (*Icteria virens*). The yellow warbler and the yellow-breasted chat were at least two to three times as abundant as the least Bell's vireo (~150 pairs) putting estimates of their populations within the park at about 300-400 pairs for each species. A focused survey was conducted for the southwestern willow flycatcher (*Empidonax traillii extimus*) but no breeding individuals were detected. One pair of light-footed clapper rail (*Rallus longirostris levipes*), was detected during the surveys.

The Swainson's thrush (*Catharus ustulatus*), another increasingly rare breeder within San Diego County was detected at four locations within the mature willow forest west of Hollister Street. A downy woodpecker (*Picoides pubescens*) nest was found in 2004. This small woodpecker's range is apparently expanding and this observation represents one of very few confirmed breeding reports this far south. An American bittern (*Botaurus lentiginosus*) was heard giving its loud song and later seen flying west from the ponds in the northwest section of the TRVRP on 16 June 2004.

A peregrine falcon (*Falco peregrinus*) was observed soaring high overhead on the first of the two dedicated raptor survey days. Sharp-shinned hawks (*Accipiter striatus*) are not known to breed within San Diego County but were present as a wintering species into late April. American kestrel (*Falco sparverins)*, Cooper's hawk (*Accipiter cooperii),* northern harrier (*Cireus cyaneus*), red-shouldered hawk (*Buteo lineatus*) and white tailed hawk (*Elanus leucurus*) were recorded nesting within the TRVRP.

The influence of the human population of Tijuana, Mexico on the Valley's avifauna can be witnessed in the presence of breeding northern cardinals (*Cardinalis cardinalis*) and black-throated magpie jays (*Calocitta colliei*). The occurrence of both species is likely a result of escaped or freed cage birds finding suitable refuge from urbanized Tijuana in the diverse habitats of the valley just to the north.

The northern cardinal is a resident species throughout much of the eastern U.S., south into Mexico and west into Arizona. This species is on the CSC list to protect the small naturally occurring population occurring in the Colorado River Valley in eastern San Bernardino County. Black-throated magpie jays typically occur in Baja.

A male northern cardinal was observed feeding a fledgling along Monument Road, and a female was observed nearby on 10 May, 2004. This is one of the first instances of confirmed breeding of this species in southern California. Black-throated magpie jays were observed in small flocks and family groups. Like many other jays, this species employs cooperative breeding, first described as "helpers at the nest" (Skutch 1987). Young birds remain with their parents for one or two seasons to help them protect the nest and raise young. This would explain the presence of these family groups being seen throughout the breeding season where most birds are only found in flocks during the non-breeding season.

Other escaped caged birds observed include a white-collared seedeater (*Sporophila torqueola*) and an unidentified parrot (Subfamily:*Arinae,* probably *Amazona sp.*). As for rare or vagrant species, several were observed during the surveys. Individual sightings include a male hooded warbler (*Wilsonia citrina)*, male indigo bunting (*Passerina cyanea*), immature male American redstart

(*Setophaga ruticilla*) and a male rose-breasted grosbeak (*Pheucticus ludovicianus*).

## Mammals

Mammal presence was observed or determined by scat or tracks and included the coyote *(Canis latrans*), , kangaroo rat *(Dipodomys* sp), Botta's pocket gopher (*Thomomys bottae*), California ground squirrel (*Spermophilus beecheyi*), Audubon's cottontail (*Sylvilagus audubonii*) and domestic sheep. Small mammal presence was also documented by incidental trapping of species during the herpetofauna survey. Open grassland communities and the leafy understory of scrub and woodland communities provide excellent foraging habitat for herbivorous mammals and the larger mammals are associated with woodland communities in TRVRP. These mammals are all common species in sagebrush- or chaparral-dominated habitats in San Diego County.

The most prominent mammals visually observed were ground squirrels, brush rabbits (*Sylvilagus bachmani*), and jackrabbits (*Lepus californicus*). These were mostly found near the roads in the restored areas and along the roads. Small mammals were caught in the herptile traps. However, an occasional mouse was observed incidentally during other general and focused surveys.

## Wildlife Corridors

TRVRP includes a mixture of recreational opportunities, sustainable agriculture, and native habitats. The County's Trails and Habitat Enhancement Project, as described in the EIR certified in December 2006 by the County Board of Supervisors, formalized a passive recreational trails system which was found to be in conformance with the City's Subarea Plan. Implementation of the Trails and Habitat Enhancement Project will provide enhanced ecological functions in terms of local movement corridor for wildlife.

Though TRVRP is located along the Pacific Flyway and serves as an important resting, breeding, and foraging area for migrating birds. The TRVRP is bounded to the north and east by development, the Pacific Ocean to the west, and the international border to the south, therefore, it does not function as a connection to other preserved lands for most taxa. This was evident in the lack of populations of most medium and large mammals known to the east and south of the TRVRP.

***TABLE 3***
***SPECIAL STATUS WILDLIFE SPECIES POTENTIALLY OCCURRING WITHIN PROJECT AREA***

| *Scientific Name* | Common Name | Status[1] | Covered by MSCP | Habitat | TRVRP occurrence |
|---|---|---|---|---|---|
| ***Invertebrates*** | | | | | |
| *Branchinecta sandiegonensis* | San Diego fairy shrimp | FE/-- | Yes | Endemic to vernal pools on San Diego Co. mesas. Survives in depressions and ruts. | No surveys performed. Recorded occurrence south of Wruck Canyon. |
| *Euphydryas editha quino* | Quino checkerspot | FE/-- | No | Larvae require *Plantago erecta* or *Castilleja exserta*, especially in sage-scrub habitat. | No surveys performed. Not observed in general wildlife surveys. Some *Plantago erecta* was present |
| *Euphyes vestries harbisoni* | Harbison's dun skipper | FSC/-- | No | Endemic to western San Diego Co., restricted to riparian areas, intermittent streams, and oak woodlands where its larval host plant, San Diego sedge (*Carex spissa*) is present. | No surveys performed. No *Carex spissa* observed during floristic surveys. |
| *Lycaena hermes* | Hermes copper butterfly | FSC/-- | No | Mixed woodlands, chaparral, and coastal sage scrub. Restricted range from San Diego Co. and adjacent Baja California Norte. Many colonies lost to development or threatened by fire. | No surveys performed. Host plant, spiny redberry (*Rhamnus crocea*), absent from chaparral habitats Unlikely at lower elevations of TRVRP. |
| *Mitoura thornei* | Thorne's hairstreak butterfly | --/CSC | Yes | Hilly, rocky areas. Small population in San Diego Co. Because of its small range and susceptibility to fire, this butterfly is of a high conservation priority. Critically imperiled due to fires. | No surveys performed. Unlikely at lower elevations of TRVRP. Host plant, spiny redberry (*Rhamnus crocea*) absent from chaparral habitas. |
| *Panoquina errans* | Saltmarsh skipper | FSC/-- | Yes | Salt marshes; also tidal marshes and meadows near cord grass marshes. | No surveys performed. Unlikely within TRVRP, possible in NERR. |
| *Streptocephalus woottoni* | Riverside fairy shrimp | FE/-- | Yes | Endemic to San Diego Co. in areas of tectonic swales/earth slump basins in grassland & CSS. Inhabit seasonally pools filled by rain. Hatch in warm water later in season. | No surveys performed. Suitable vernal pool habitat not present within TRVRP. |
| **Amphibians and Reptiles** | | | | | |
| *Aspidoscelis (Cnemidophorus) hyperythra* | Orange-throated whiptail | FSC/CSC | Yes | Low-elevation CSS, chaparral, valley-foothill hardwood. Prefers washes & other sandy areas w/patches of brush and rocks. Perennial plants necessary for its major food – termites. | Present. Primarily caught in riparian areas; also in CSS. |
| *Bufo (microscaphus) californicus* | Arroyo toad | FE/CSC | Yes | Coastal southern California from Salinas River Basin to Arroyo San Simón in northern Baja California. Prefers riparian habitats with sandy streambeds with cottonwood, sycamore, and willow trees. | Not present. Focused survey concluded that onsite habitat is unsuitable. |
| *Charina (Lichanura) trivirgata* | Rosy boa | FSC/-- | No | In coastal areas, inhabits rocky chaparral-covered hillsides and canyons. | Not detected in focused herpetological surveys. |
| *Clemmys marmorata pallida* | Southwest pond turtle | FSC/CSC | Yes | Small range in So. Cal. and northern Baja California;. Permanent and intermittent waters of rivers, creeks, small lakes and ponds, marshes, irrigation ditches, and reservoirs. Sometimes found in brackish water. Often uses basking sites (e.g., logs, vegetation mats, rocks). | Not detected in focused herpetological surveys. |
| *Crotalus ruber ruber* | Northern red-diamond rattlesnake | --/CSC | No | Chaparral, woodland, grassland & desert areas. Occurs in rocky areas & dense vegetation. Needs rodent burrows, cracks in rocks or surface cover objects. | Not detected in focused herpetological surveys. |

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| *Scientific Name* | Common Name | Status[1] | Covered by MSCP | Habitat | TRVRP occurrence |
|---|---|---|---|---|---|
| *Phrynosoma coronatum blainvillei* | San Diego horned lizard | --/CSC | Yes | Coastal sage, annual grassland, chaparral, oak woodland, riparian woodland, and coniferous forest. Key elements are loose, fine soils with a high sand fraction; an abundance of native ants or other insects; and open areas with limited overstory for basking and low, but relatively dense shrubs for refuge. | Has been observed in dune habitats of TRNERR and TSNWR. Not detected in focused herpetological surveys. |
| *Spea (Scaphiopus) hammondi* | Western spadefoot toad | FSC/CSC | No | Require temporary rainpools with cool water temperatures that last 3 weeks and lack fishes, bullfrogs, and crayfishes. | Present. Tadpoles found in a border patrol road water-filled depression. |
| ***Birds*** | | | | | |
| *Accipiter cooperii* | Cooper's hawk | --/CSC | Yes | Year –round resident of San Diego Co. Prefers oak, riparian, and eucalyptus woodlands, from the coast to the mountains. Hunt over CSS, chaparral, and suburban landscaping. Nest in dense stands of oak or riparian woodland and have been reported nesting in exotic trees, such as eucalyptus (late-March and late-May). | Present and breeding. Nesting high in dense canopy inside stands of mature willows, and in eucalyptus tree in Smugglers Gulch. |
| *Agelaius tricolor* | Tricolored blackbird | FSC/CSC | Yes | Breed, forage and roost in large colonies- historically in marshes- also in upland and agricultural areas. | Not detected. |
| *Aimophila ruficeps canescens* | Rufous-crowned sparrow | FSC/CSC | Yes | Southern CA CSS and mixed chaparral. Frequents relatively steep, often rocky hillsides w/ grass & forb patches. | Present. |
| *Amphispiza belli belli* | Bell's sage sparrow | FSC/CSC | No | Generally uncommon to fairly common inhabitants of dense brushlands, ranging from the Cascade Mountains southward into Baja California. They are locally uncommon in coastal sage scrub and open chaparral vegetation in San Diego Co. | Not detected. |

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| *Scientific Name* | Common Name | Status[1] | Covered by MSCP | Habitat | TRVRP occurrence |
|---|---|---|---|---|---|
| *Aquila chrysaetos* | Golden eagle | BEPA/CSC | Yes | In forested areas, nesting territories of golden eagles usually contain large openings such as burns, marshes, and meadows. Golden eagles feed primarily on small mammals, particularly rabbits, and on carrion. Nests on cliff ledges, and in trees. | Not recorded in raptor surveys for this project. Many sightings in recent years of foraging juveniles in the Tijuana River Valley. |
| *Athene cunicularia* | Burrowing owl | FSC/CSC | Yes | Burrow sites in open, dry annual or perennial grasslands, deserts and scrublands characterized by low-growing vegetation. Subterranean nester, dependent on burrowing mammals. | Likely present. Recorded in TR Valley. In 1989, including NERR. |
| *Buteo regalis* | Ferruginous hawk | --/CSC | Yes | Semiarid grasslands with scattered trees, rocky mounds or outcrops, and shallow canyons that overlook open valleys. They may occur along streams or in agricultural areas in migration. | Not detected. Unlikely, not typical habitat. |
| *Buteo swainsoni* | Swainson's hawk | --/CT | Yes | Swainson's hawks are restricted to portions of the Central Valley and Great Basin regions where suitable nesting and foraging habitat is still available. Central Valley populations are centered in Sacramento, San Joaquin, and Yolo counties. | Not detected. Unlikely, outside of range. |
| *Campylorhynchus brunneicapillus cousel* | Coastal cactus wren | FSC/CSC | Yes | Southern CA CSS. Wrens require tall opuntia cactus for nesting and roosting. | Not detected. Low Potential. Recorded in Otay region in 1991, but host cactus not reported in TRVRP. |
| *Charadrius alexandrinus nivosus* | Western snowy plover | FT/CSC | Yes | Sandy beaches, salt pond levees & shores of large alkali lakes. Needs sandy, gravelly or friable soils for nesting. | Not detected, TRVRP too far from suitable nesting habitat. |

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| *Scientific Name* | Common Name | Status[1] | Covered by MSCP | Habitat | TRVRP occurrence |
|---|---|---|---|---|---|
| *Charadrius montanus* | Mountain Plover | FSC/CSC | Yes | Level areas with very short grass, and areas of bare ground. Show a strong affiliation for sites that are heavily grazed by domestic livestock | Not detected. Winter range includes southern California. Recorded regularly in TRVRP until 1991, when last individuals were recorded. No other reports of the species in the County since then except for a single migrant. |
| *Circus cyaneus* | Northern harrier | --/CSC | Yes | Resident of California marshes and fields Communal flocks roost on the ground in agricultural fields, abandoned fields and salt marshes. Breeding occurs in marshes, grasslands, meadows and cultivated fields. It appears that coastal areas are preferred, but inland areas are used when coastal habitats are limited. | Present and breeding. Abundant in winter hunting in fields north of Monument Rd., atop Spooner's Mesa and in coastal marshes west of TRVRP. |
| *Dendroica petechia* | Yellow warbler | --/CSC | No | Willow-cottonwood riparian areas. | Present and abundant in TRVRP. |
| *Elanus leucurus* | (White-tailed) Black-shouldered kite | FSC/fully protected | No | In San Diego Co. black-shouldered kites prefer to nest in riparian woodland, live oaks, or in groves of sycamores, where these border grassland and open fields. Kites hunt for food in any open grassy area and are often seen hovering even over weedy margins of highways. Their prey consists primarily of small rodents, but they also feed on terrestrial insects. | Present, breeding and foraging in combination of mature willow riparian and fallow fields. |
| *Empidonax traillii extimus* | Southwestern willow flycatcher | FE/CE | Yes | Breeds in dense riparian habitats along rivers, streams, or other wetlands - prefers dense growths of willows (Salix sp.), broom (Baccharis sp.), or other shrubs and medium-sized trees, within 20m of water or very saturated soil, supporting riparian vegetation | No breeding SW willow flycatchers detected (only 3 unpaired migrants observed over several years in a heavily surveyed area) |
| *Falco mexicanus* | Prairie falcon | --/CSC | No | Grasslands, plains, open regions. Requires sheltered cliff ledges for cover. Breeds from mid-February through mid-September, with peak April - early August. | Potential. Not recorded during focused raptor survey. |
| *Falco peregrinus* | Peregrine falcon | FD/CE | Yes | Nesting sites are typically on ledges of large cliff faces, but some pairs are nesting on city buildings and bridges. Nesting and wintering habitats are varied, including wetlands, woodlands, other forested habitats, cities, agricultural areas and coastal habitats. | Present. Recorded soaring over TRVRP in 2004. |
| *Haliaeetus leucocephalus* | Bald eagle | FD, BEPA/CE | Yes | Winters throughout most of California at lakes, reservoirs, river systems, and some rangelands and coastal wetlands. Breeding range is mainly in mountainous habitats near reservoirs, lakes and rivers, mainly in the northern two-thirds of the State, in the Central Coast Range, and on Santa Catalina Island. Large nests are normally built in the upper canopy of large trees, usually conifers | Not detected. Unlikely, as typical habitat for this species is not present. |
| *Icteria virens* | Yellow-breasted chat | --/CSC | No | Willow-cottonwood riparian areas. | Present and abundant in TRVRP |
| *Numenius americanus* | Long-billed curlew | FSC/CSC | Yes | Preferred winter habitats include large coastal estuaries, upland herbaceous areas, and croplands. On estuaries, feeding occurs mostly on intertidal mudflats. | Not present in TRVRP but present in suitable habitats within TSNWR. |
| *Passerculus sandwichensis beldingi* | Belding's savannah sparrow | FSC/CE | Yes | Inhabits coastal salt marshes, from Santa Barbara Co. through San Diego Co. Nests in Salicornia on and bout margins of tidal flats. | Not present within TRVRP but present in relatively high numbers within picklweed marsh habitats of the TSNWR. |
| *Pelecanus occidentalis californicus* | California brown pelican | FE/CE | Yes | Builds nests of sticks on the ground, typically on islands or offshore rocks. Nests from the Channel Islands of southern California southward along the Baja California coast and in the Gulf of California to coastal southern Mexico. | Not present within TRVRP but may be present within suitable habitats within NERR and TSNWR. |

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| *Scientific Name* | Common Name | Status[1] | Covered by MSCP | Habitat | TRVRP occurrence |
|---|---|---|---|---|---|
| *Plegadis chihi* | White-faced ibis | FSC/CSC | Yes | Not known to breed regularly anywhere in California Prefers shallow, grassy marshes. | Not present |
| *Polioptila calfornica californica* | Coastal California gnatcatcher | FT/CSC | Yes | Obligate, permanent resident of CSS below 2500 ft in southern CA. Low, CSS in arid washes. On mesas and slopes. In San Diego Co., occurs most commonly in CSS scrub vegetation with high proportions of California sage and flat-topped buckwheat and less commonly in sub-associations dominated by black sage, lemonade-berry or broom baccharis. | Present. Six pairs recorded within suitable habitat in the bluffs surrounding the mesas at the S end of the TRVRP. |
| *Rallus longirostris levipes* | Light-footed clapper rail | FE/CE | Yes | Found in salt marshes where cordgrass and pickleweed are the dominant vegetation, and in certain brackish and freshwater situations.. Feeds on mollusks and crustaceans. | Present. Two pairs detected in NE portion of TRVRP. |
| *Sterna antillarum browni* | California least tern | FE/CE | Yes | Nests along the CA coast. Colonial breeder on bare or sparsely vegetated, flat substrates, alkali flats, land fills, or paved areas. | Not detected. Unlikely in TRVRP. Least tern colony occurs at TSNWR and BFSP. |
| *Sterna elegans* | Elegant tern | FSC/CSC | Yes | Although thousands of Elegant Terns from Mexico spend the summer and fall along the California coast, the only breeding colony in the U.S. is in the salt work dikes at the south end of San Diego Bay where some 50-200 pairs nest. | Not detected. Unlikely within TRVRP. |
| *Vireo bellii pusillus* | Least Bell's vireo | FE/CE | Yes | Summer resident of southern CA in low riparian in vicinity of water or dry river bottoms; below 2000 ft. Margins of bushes or on twigs projecting into pathways, usually willow, baccharis, mesquite. | Present and abundant. Breeding in riparian areas of TRVRP. |
| ***Mammals*** | | | | | |
| *Antrozous pallidus* | Pallid bat | --/CSC | No | Deserts, grasslands, shrublands, woodland, forests. Most common in open, dry habitats w/ rocky areas for roosting. Roosts must protect bats from high temperatures. Known in Anza-Borrego State Park. | No surveys conducted. Not detected. Potentially present. |
| *Chaetodipus fallax fallax* | Northwestern San Diego pocket mouse | FSC/CSC | No | Coastal scrub, chamise-redshank chaparral, mixed chaparral, sagebrush, desert wash, desert scrub, desert succulent shrub, pinyon-juniper, and annual grassland. In San Diego Co., mainly in arid coastal and desert border areas with highest densities in rocky/gravelly areas with a yucca overstory, and in desert scrub near or in the pine-juniper belt. | Present. Captured in pitfall traps during reptile surveys (ERA 2004) |
| *Corynorhinus townsendii* | Townsend's big-eared bat | FSC/CSC | No | Caves, mines, buildings, oak woodland, riparian woodland, chaparral. | No surveys conducted. Not detected. Potentially present. |
| *Dipodomys stephensi* | Stephens' kangaroo rat | FE/CT | No | Prefers annual and perennial grassland habitats, but may occur in CSS or sagebrush with sparse canopy cover, or in disturbed areas. Preferred perennials are buckwheat and chamise; preferred annuals are brome grass and filaree. | No surveys conducted. Not detected. Potentially present. |
| *Eumops perotis* | Western mastiff bat | FSC/CSC | No | Cliffs, crevices, chaparral, grassland, coastal sage scrub. | No surveys conducted. Not detected. Potentially present. |
| *Felis concolor* | Mountain lion | --/CA protected | Yes | Widespread, uncommon permanent resident, ranging from sea level to alpine meadows. Found in nearly all habitats, except xeric regions of the Mojave and Colorado deserts that do not support mule deer populations. Most abundant in riparian areas, and brushy stages of most habitats. Numbers appear to be increasing. | Unlikely. No mule deer in area and moderate human use would discourage occupation. |

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| *Scientific Name* | Common Name | Status[1] | Covered by MSCP | Habitat | TRVRP occurrence |
|---|---|---|---|---|---|
| *Lepus californicus bennetti* | San Diego black-tailed jackrabbit | FSC/CSC | No | Coastal sage scrub habitats in southern CA. Intermediate canopy stages of scrub habitats and open shrub/herbaceous/tree/edges. | Potential. Black tailed jackrabbit present. |
| *Macrotus californicus* | California leaf-nosed bat | --/CSC | No | Desert riparian, desert wash, desert scrub. Needs rocky, rugged terrain with mines or caves for roosting | No surveys conducted. Not detected. Potentially present. |
| *Myotis ciliolabrum* | Small-footed myotis | FSC/-- | No | Arid habitat associated with cliffs. Hibernates in caves and mines. Found in cracks, crevices in rocks and old buildings. | No surveys conducted. Not detected. Potentially present. |
| *Neotoma lepida intermedia* | San Diego desert woodrat | --/CSC | No | Coastal southern CA from SD County to SLO County. Woodland or tall shrub Canopies preferred. Particularly abundant in rock outcrops and rocky cliffs. | Potential. Not detected. |
| *Nyctinomops femorosaccus* | Pocketed free-tailed bat | --/CSC | No | Variety of arid areas in So. Cal. Pine-juniper woodlands, desert scrub, palm oasis, desert wash. Rocky areas with high cliffs. Roost in San Diego County in abandoned granite quarry. | No surveys conducted. Not detected. Potentially present. |
| *Odocoileus hemionus fuliginata* | Southern mule deer | --/CA game species | Yes | Occur in early to intermediate successional stages of most forest, woodland, and brush habitats. Prefer a mosaic of various-aged vegetation that provides woody cover, meadow and shrubby openings, and free water. | Unlikely. None observed or reported. |
| *Perognathus longimembris pacificus* | Pacific pocket mouse | FE/CSC | No | Inhabits the narrow coastal plains from the vicinity of the Mexican border, northward to El Segundo, Los Angeles Co. | Potential. Not detected in focused trapping surveys conducted in 1996. |
| *Taxidea taxus* | American badger | --/CSC | Yes | Uncommon, permanent resident found throughout most of the state, except in the northern North Coast area (Grinnell et al. 1937). Most abundant in drier open stages of most shrub, forest, and herbaceous habitats, with friable soils. | Not detected. Unlikely, prefers higher and drier habitats than typically found in TRVRP. |

[1] **Status (Federal/State)**

Federal
FE = Federally endangered
FT = Federally threatened
FSC = Federal Species of Concern
FD = Federally delisted
PT = Proposed for Federal listing as threatened
BEPA = Bald Eagle Protection Act
-- = No Federal Status

State
CE = State endangered
CT = State threatened
CSC = State species of special concern
CA Protected = moratorium on hunting
-- = no State status

## Nonnative Fauna Species

## *Invertebrates*

The most abundant nonnative invertebrate in the Park is the crayfish (*Orconectes rusticus*). Most of the crayfish observed were found in the disturbed freshwater marsh areas adjacent to the community gardens off of Hollister road. They occurred along the shore? where the water was receding and the vegetation was high. In southern California the introduced red or rusty crayfish, which is native to the southeastern U.S., is a threat to wildlife biodiversity. Crayfish are predatory species that compete for shelter and food with native species of amphibians and reptiles, especially during the larval and juvenile stages of development.

## *Amphibians*

## *Bullfrog*

In the project area, bullfrogs were isolated to open water and fresh water marsh areas most notably the Dairy Mart ponds and the ponds in the northwest portion of the TRVRP. Most bullfrogs could be heard at night and early in the morning. Originally native to eastern North America, the bullfrog has been widely introduced in the western U.S. where it out competes native species and has caused population declines in native ranid frog species and the Mexican garter snake (*Thamnophis eques*). Adult bullfrogs were seen and one pair was observed in amplexus near a steep bank of the pond on the east side of Dairy Mart Rd. This species is usually found in association with permanent water, but can disperse over land at least several miles (reference). This species requires permanent water because it over-winters as a tadpole.

## *African Clawed Frog*

In the TRVRP, the African clawed frog (*Xenopus laevis*) was observed in one trap and in the freshwater marsh and open water areas west of Dairy Mart Road. Native to Southern Africa, this species was introduced to the U.S. in the 1960's and feeds on native amphibian tadpoles such as the arroyo toad. This species is the only totally aquatic frog in California and will move overland at night during rains or during humid nights as typical within the TRVRP during the summer trapping months. Three individuals were observed in the traps and notably on heavy overcast and damp mornings.

### *Birds*

#### *Brown-Headed Cowbirds*

Most cowbird species are generalist parasites, laying their eggs in the nests of a wide range of other bird species. The brown-headed cowbird (*Molothrus ater*) has spread from its original home in the Great Plains through anthropogenic conversion of forests into farms and pastures. They tend to be associated with dairies, stables, and other areas where large domestic animals are present because they forage on the grain that is provided to the animals, as well as on the insects that are attracted to the animals' manure. The cowbird is now sufficiently numerous to pose a major threat to the continued survival of several avian species and subspecies that it regularly parasitizes. As a result, much research effort has recently been directed at understanding the breeding biology of brown-headed cowbirds. . Of particular concern in the TRVRP are the least Bell's vireo and the southwestern willow flycatcher, two special status species that have experienced a great reduction in population size due to cowbird parasitism. In addition, the California gnatcatcher is another special status species that has been documented to serve as host to the cowbird.

The brown-headed cowbird possesses several traits that make it an effective parasite. Cowbird eggs usually hatch slightly earlier than the host's eggs giving the cowbird nestling a distinct advantage. In addition cowbird nestlings usually are larger and grow faster than the host's young, which enable them to garner more than their fair share of the food brought to the nest. The presence of a cowbird egg or nestling in a host nest will often result in zero host productivity for that nest. Also, nest parasitism may have a greater impact on productivity than nest predation since birds will often re-nest soon after the nest has been lost to a predator and no energy has been expended raising another species' young.

Several sightings of brown-headed cowbirds were recorded within the TRVRP. A trapping program was initiated in the early 1990's in the Tijuana River Valley per suggestions made by the USFWS. Since the trapping program began, overall brown-headed cowbird numbers in the TRVRP have decreased, which has markedly benefited a number of nesting avian species (Varanus 2003). The presence of the traps almost certainly reduced the number of incidental sightings by surveyors. Most of the occasional sightings occurred near the northwest corner of the TRVRP and only one or two reports of this species were from within the riparian corridor.

## CULTURAL RESORUCES

San Diego County is characterized by a rich and varied historical past. Cultural resources, which reflect this history, consist of archaeological remains, historic buildings, historic structures, historic objects, artifacts, photographs, oral histories, Native American memories and public documents. The TRVRP is rich in cultural resources, including precontact village sites and historic sites. The known sites can be seen on the surface of the valley. However, the potential for buried sites is significant in the Valley so the number of sites and the size of known sites may be substantially different.

The physical geography of the TRVRP is a relatively flat river valley floor that slopes up to the tall mesas to the south that serve as the US/Mexico international border. For a complete prehistoric, ethnographic, and historic background see Appendix D of the EIR on the DPR website, www.sdparks.org.

Record searches and a literature review from the South Coastal Information Center, San Diego State University, the San Diego Historical Society, and the San Diego County Historian, Department of Parks and Recreation, revealed that 43 cultural resource studies have been previously conducted within one-quarter mile of the TRVRP, 32 of which are located within, or include portions of the TRVRP (Exhibit 11, Confidential). However, only 22 of these studies have been completed since 1994.

A 2004 archaeological survey of selected portions of the TRVRP (SWCA 2004) resulted in the recordation of nine previously unrecorded prehistoric cultural resources and the updating of records for one previously recorded prehistoric

site. In regard to historic resources, the survey resulted in the recordation of one previously unrecorded historic structure. The cultural resources survey was conducted for approximately 240 acres. The portions of the TRVRP surveyed for the TRVRP Trails and Habitat Enhancement Project include the following areas:

Community Garden Area (Includes one Future Habitat Restoration area);
West of Dairy Mart Ponds Proposed Habitat Restoration Area;
Fallow Agricultural Areas;
Active Agricultural Areas;
Proposed Recreational Trail Bridge and New Trail Segment; and,
Proposed New Trail Segment (Tomato Trail).

Areas not surveyed in 2004 will require surveying and evaluation before active or passive restoration efforts can be implemented.

The cultural resource sites include prehistoric artifacts and features, as well as historic archeological sites. Artifacts at the prehistoric archeological sites within the TRVRP consist predominantly comprised of local metavolcanic lithics and marine shell.

Table 4, lists the previously recorded sites, including the site number, site description, resource eligibility, the proposed project impact, and recommended mitigation

***TABLE 4***
***ARCHAEOLOGICAL SITES WITHIN TRVRP AND POTENTIAL IMPACTS AND MITIGATION***

| Site Number | Site Description | Eligibility for NRHP/CRHR | Proposed Project Construction | Mitigation |
|---|---|---|---|---|
| TJ-2 | Sparse lithic scatter | Unknown | None | None |
| TJ-3H | Historic pump house | Unknown | CBP trail retained | None |
| TJ-4H | Historic house | Unknown | CBP trail retained | None |
| New Trees site | Shell and lithic scatter | Unknown | Closed trail | Flag, buffer, and avoid during restoration |
| SDI-4933 | Lithic scatter with hearth features | Ineligible for NRHP | Widening existing 1.5' to a 4' equestrian/pedestrian trail to 4' | Monitor during trail widening |
| SDI-7546 | Sparse lithic scatter | Unknown | None | None |
| SDI-8595 | Historic trash deposit | Recommended ineligible | Closed trails and CBP Sole Use existing trails | Flag, buffer, and avoid during restoration |
| SDI-8596 | Sparse lithic scatter | Ineligible for NRHP | None | None |
| SDI-8597 | Lithic scatter | Ineligible for NRHP | Closed trails | Flag, buffer, and avoid during restoration |
| SDI-8598 | Shell and lithic scatter | Ineligible for NRHP | None | None |
| SDI-8599 | Shell and lithic scatter | Ineligible for NRHP | None | None |
| SDI-8600 | Shell and lithic scatter | Unknown | 6' Multi-use trail within existing road greater than 10' wide | None |
| SDI-8601 | Lithic scatter | Ineligible for NRHP | None | None |
| SDI-8602 | Lithic scatter | Unknown | Closed trail | Flag, buffer, and avoid during restoration |
| SDI-8603 | Lithic scatter | Ineligible for NRHP | Closed trails | Flag, buffer, and avoid during restoration |
| SDI-8604 | Lithic scatter, quarry | Ineligible for NRHP | Closed trail and CBP Sole Use trail retained | Flag, buffer, and avoid during restoration |
| SDI-8605 | Lithic scatter | Ineligible for NRHP | None | None |
| SDI-8773 | Adobe ruin, prehistoric component | Recommended ineligible | CBP Sole Use trail retained | Flag, buffer, and avoid during restoration |
| SDI-10487 | Shell and lithic scatter | Unknown | Closed trail, | |

***TABLE 4***
***ARCHAEOLOGICAL SITES WITHIN TRVRP AND POTENTIAL IMPACTS AND MITIGATION***

| Site Number | Site Description | Eligibility for NRHP/CRHR | Proposed Project Construction | Mitigation |
|---|---|---|---|---|
| | | | Widening existing 3'-4' trail to a 6' multi-use trail | |
| SDI-10669 | Supposed location of ethnographic village of *Millejo*, however the archaeological evidence is lacking | Unknown | 6' trails within existing road 10' wide or more; 6' trail with road or path 8'to10' wide; | None |
| SDI-10967 | Lithic scatter | Unknown | Widening existing 1.5' to 2' wide path to a 6' wide multi-use trail, CBP sole use of an existing trail retained | Flag, buffer, and monitor during trail widening. |
| SDI-11095 | Historic building debris | Ineligible for NRHP | None | None |
| SDI-11097 | Lithic scatter | Unknown | Closed trail | Flag, buffer, and avoid during restoration |
| SDI-11098 | Lithic scatter | Unknown | None | None |
| SDI-11099 | Prehistoric lithic, ceramic and shell deposit | Unknown | Closed trail | Flag, buffer, and avoid during restoration |
| SDI-11100 | Lithic scatter | Ineligible for NRHP | 6' wide trail within existing road or pathway 10' wide or more | None |
| SDI-11101 | Lithic scatter | Ineligible for NRHP | None | None |
| SDI-11945 | Lithic scatter | Unknown | Closed trail and CBP Sole Use trail retained | Flag, buffer, and avoid during restoration |
| SDI-11946 | Lithic scatter | Unknown | Closed trail and | Flag, buffer, and avoid during restoration |
| SDI-11947 | Historic structure foundation | Unkown | CBP Sole Use trail retained | None |
| SDI-11948H | Historic foundations, cobble walls, cobble-lined walks | Unknown | None | None |
| SDI-12962H | Historic to modern trash scatter mixed with prehistoric artifacts from SDI-4934 | Unknown | None | None |
| SDI-13486 | Lithics | Ineligible for NRHP | None | None |

***TABLE 4***
***ARCHAEOLOGICAL SITES WITHIN TRVRP AND POTENTIAL IMPACTS AND MITIGATION***

| Site Number | Site Description | Eligibility for NRHP/CRHR | Proposed Project Construction | Mitigation |
|---|---|---|---|---|
| SDI-13487 | Lithics and possible hearth | Unknown | None | None |
| SDI-13488 | Lithics and shell scatter | Unknown | None | None |
| SDI-15099 | Lithic scatter | Recommended ineligible for NRHP | Closed trail and CBP Sole Use trail retained | Flag, buffer, and avoid during restoration |
| TR-1 | Shell scatter and sparse lithics | Unknown | None | None |
| TR-2 | Shell scatter and sparse lithics | Unknown | None | None |
| TR-3 | Shell scatter and sparse lithics | Unknown | None | None |
| TR-4 | Isolate brick fragment | Ineligible for NRHP and CRHR | CBP Sole Use trail retained | None |
| TR-5 | Isolated flakes | Ineligible for NRHP and CRHR | Widening existing 1.5’ to 2’ wide path to a 6’ wide multi-use trail | None |
| TR-6 | Isolated flakes | Ineligible for NRHP and CRHR | Widening existing 1.5’ to 2’ wide path to a 6’ wide multi-use trail | None |
| TR-7 | Isolated scraper | Ineligible for NRHP and CRHR | None | None |
| TR-8 | Shell and sparse lithic scatter, tools | Unknown | Widening of 3’ to 4’ pathway to 6’ multi-use trail. Community Garden passive habitat restoration, possible fencing or signage | Flag resource and buffer, establish fencing and signage outside |
| TR-10 | Isolated flakes | Ineligible for NRHP and CRHR | Widening existing 1.5’ to 2’ wide path to a 6’ wide multi-use trail | None |
| TR-11 | Hollister Street Bridge | Eligible for NHRP and CRHR | Possible increase in traffic | None |

## PALEONTOLOGICAL RESOURCES

There are three paleontologically sensitive geologic units within the TRVRP study area: marine sedimentary rocks of the late Pliocene (1.5 to 3 million years old) San Diego Formation, the early Pleistocene (500,000 to 1.5 million years old) Lindavista Formation, and the late Pleistocene (220,000 years old) Bay Point Formation (Demeré and Walsh 1993). A map depicting paleontological sensitivity within the TRVRP is presented in Exhibit 12 (Confidential). Geologic units with low or no paleontological sensitivity within the study area include Quaternary alluvium and slopewash deposits and Quaternary landslide deposits.

Quaternary alluvium and slopewash deposits typically consist of stream-deposited cobble to pebble gravel, sand, silt, mud, and clay. This younger alluvium is typically present in low-lying valleys and stream channels. Alluvial deposits less than 5,000 years old are too young to contain fossils, although they may contain cultural and biological remains. Based on the results of the field survey, the Quaternary alluvium is too young geologically to contain fossils, and therefore, is considered to have low paleontological sensitivity.

Landslide deposits consist of rock material that has moved under the influence of gravity. Debris flows, debris slides, rockslides, debris slumps, slump earthflows, and earthflows are included in landslide deposits. Lithologies of these deposits vary and are dependent upon the type of source rock. In general, landslides and debris flows are much less likely to contain well-preserved fossils than intact native sediments. Landslide material is often subjected to increased groundwater percolation, which tends to have a negative effect on the preservation of fossils, and gravitationally induced movements of sediment can also destroy fossil remains through abrasion and breakage. Additionally, when the original stratigraphic position of the sediments is disturbed, there are varying degrees of information loss with the severity of changes to the slide mass. Based on the results of the field survey, landslide deposits are considered too young geologically to contain fossils and therefore, have been assigned low paleontological sensitivity.

The oldest of the three paleontologically sensitive geologic units within TRVRP boundaries is the San Diego Formation, which is considered to have high paleontological sensitivity because of the abundance and diversity of fossil localities and their fossil assemblages. The San Diego Formation is a marine sedimentary deposit that typically consists of yellowish-gray, fine-grained sandstones with well-sorted, rounded pebble conglomerate lenses (Demeré and Walsh 1993). The rock unit has yielded rich fossil beds of marine invertebrates, such as clams, scallops, snails, crabs, and barnacles, and marine vertebrates including sharks, rays, bony fishes, dolphins, and baleen whales (Demeré and Walsh 1993).

The Lindavista Formation is a marine and/or non-marine terrace deposit that consists of rust-red, coarse-grained, pebbly sandstones and pebble conglomerates (Demeré and Walsh 1993). The marine invertebrate fauna indicate an early Pleistocene age for the formation and do not represent of any single biotic community. Specimens collected from the Linda Vista Terrace in San Diego County suggest two types of habitat: sandy beach and cobble or rocky-bottom (Kennedy 1973). An exposed open coast sandy beach habitat is strongly suggested by the great abundance of Pismo clam (*Tivela stultorum)* (Kennedy 1973). Most of these specimens were highly fragmented, indicating mixing and local transport before deposition. Elsewhere in the Lindavista Formation, fossil localities are rare and the fossils collected include nearshore marine invertebrates and sparse remains of shark and baleen whales. Based on the generally low abundance of fossils, it has been assigned moderate paleontological sensitivity (Demeré and Walsh 1993).

The Bay Point Formation is a nearshore marine sedimentary deposit consisting of light gray, friable to partially cemented, fine-to coarse-grained, massive and cross-bedded sandstones (Demeré and Walsh 1993). According to the San Diego County Paleontological Resource Guidelines, it has been assigned a high paleontological sensitivity based on the recovery of large and diverse assemblages of well-preserved marine invertebrate fossils (primarily mollusks), and some fossil marine vertebrates such as sharks, rays, and bony fishes.

# MANAGEMENT GOALS, OBJECTIVES, & RECOMMENDATIONS

## Definitions of Management Program Terms

***Policies and Priorities*** – Supporting decisions and commitments by the public agency property owners that establish the focus of management efforts and direct the process for decision making.

***Element*** - An element refers to any biological, cultural, public use, or facility maintenance program for which goals and objectives have been prepared and presented within the ASMD.

***Biological Element*** - Biological elements consist of species, habitats, or communities for which specific management goals and objectives have been developed within the ASMD.

***Cultural Element*** – Cultural elements consist of precontact and post-contact or historic resources for which specific management goals and objectives have been developed within the ASMD.

***Paleontological Element*** – Paleontological elements consist of geologic resources for which specific management goals and objectives have been prepared and discussed within the ASMD.

***Public Use/Facility Maintenance Element*** - Public use elements are any recreational or other use programs appropriate to and compatible with the purposes for which this property was acquired and describe the maintenance and administrative program which helps maintain beneficial management of the area.

***Biological Goal*** - A biological goal is the statement of intended results of management (based upon the feasibility of maintaining, enhancing or restoring species populations and/or habitat).

***Cultural Resource Goal*** – A cultural resource goal is the statement of intended management practices that will assure compliance with federal and state statues and Native American concerns.

***Paleontological Goal*** – A paleontological goal is the statement of intended results of management practices that will assure the protection of the paleontological resources.

***Public Use/Facility Maintenance Goal*** - A public use goal is the statement of the desired type and level of public use compatible with the biological element goals previously specified within the ASMD.

***Objective*** - Objectives are statements of the intended results of management actions that promote the biological, public use, or operations/maintenance goals.

–***Recommendation –*** Recommendations are the individual projects or work elements, which implement the objective. Recommendations describe management actions, form the basis for day to day management, and are useful in planning operation and maintenance budgets.

It is anticipated that the recommended management actions would be dynamic in nature. Applying adaptive management, the effectiveness and appropriateness of recommended management actions would be determined through review of objective and goal achievement and changes can be made to management actions as needed. Adaptive management techniques depend upon the specific issues impacting the resources. Therefore, the techniques herein may be subject to change or revisions when applied.

## Management Policies and Priorities

In establishing goals and objectives for the ASMD, both short-term and long-term objectives and their compatibility must be considered. Furthermore, not all uses may be established or maintained within a limited area or with limited resources. San Diego's expanding population is expected to produce increased demand for outdoor recreational opportunities and amenities. The following priorities have been provided to assist DPR in balancing the need to provide appropriate passive recreational opportunities while conserving the natural and cultural resources of the TRVRP. These are summarized as follows:

- TRVRP shall be managed for its ecological and cultural resource values and for its public use benefits. Where conflicts between resource management and public access arise, the ecological and cultural resources should be avoided whenever practicable. If impacts are required, adequate mitigation shall be provided.

- TRVRP shall be managed as a multiple habitat preserve area within the City of San Diego's MSCP Subarea. Management shall not focus exclusively on one or more highly sensitive species at the expense of other resources that presently exist or have the potential to occur onsite.

The ASMD has been divided into four elements: 1) the biological element,; 2) the cultural resources element; 3) the paleontological element, and 4) the public use/facility maintenance element, which addresses anticipated potential future use demands and the general maintenance of TRVRP. Most of the recommended management actions relate to both biology and cultural resources and of the other two elements. Recommendations have been grouped where they appear most suitable.

## Plan Implementation, Enforcement, and Responsibility

The County of San Diego DPR will be responsible for the implementation and enforcement of the ASMD. The law enforcement activities are assigned to the County's park rangers. In fact, it is expected that many of the management measures, especially the maintenance tasks, will be carried out by the rangers who are most familiar with the site and currently access the site.

Note: These monitoring protocols/requirements for MSCP covered species and habitats are currently being updated by San Diego State University funded by a CDFG Local Assistance Grant. This section is subject to change based on adoption of updated protocols by participating jurisdictions.

## Biological Element

### *Habitat Monitoring*

#### Objectives

Maintain at least the baseline acreages of native vegetation communities.

Maintain an updated vegetation community map to be used as a tool for adaptative management of TRVRP's changing biological resources. The update should be consistent with recommendations for regional vegetation monitoring.

Meet the biological monitoring requirements of the MSCP.

#### Recommendations

The County will prepare a habitat monitoring report every 5 years unless otherwise required due to temporary habitat changes (Ogden 1996). MSCP biological monitoring should also address habitat value. Vegetation monitoring for habitat value should be designed to identify adverse changes in the vegetation over time (Ogden 1996). The monitoring report will contain an updated vegetation map.

According to the Biological Monitoring Plan for the MSCP, habitat monitoring is slated to occur at location H-21, Goat Canyon-Spooner's Mesa, within coastal sage scrub (Ogden 1996). The MSCP Biological Monitoring Plan further states the following:

> "Although quantitative monitoring using a large number of transects is the most precise way to identify trends, it is labor-intensive and cost-prohibitive when applied to an area the size of the MSCP preserve. It is therefore recommended that an alternative plot method be used to assess the vegetative trends over time. This alternative method will utilize a combination of cover class estimations and direct counts within

plots, allow a larger number of locations to be monitored, and allow monitoring to occur on a more regular basis."

The ASMD incorporates by reference the *Biological Monitoring Plan for the Multiple Species Conservation Program* (Ogden 1996) Sections 3.4.1.2 through 3.4.3. These sections address the following; Sampling Sites, Permanent Point Locations, Digital Orthophotography, Vegetation Map Refinements for Monitoring Plots, Photodocumentation for Monitoring Plots, Habitat Value Monitoring in the Field, Quantitative Monitoring, Qualitative Monitoring, Data Collection, Data Analysis, Schedule, and Products. Vegetation monitoring should, at a minimum meet the requirements set forth within these sections, but may exceed those requirements if there is a clear benefit to additional monitoring and funding is available.

The monitoring should be done by qualified professional personnel with experience assessing and/or monitoring local habitats particularly Diegan coastal sage scrub and riparian communities.

## *Habitat Restoration*

**Objectives**

Restore degraded habitats and protect and enhance populations of rare plant species through stabilization of eroded lands, strategic revegetation, and exotic plant species removal/control.

Manage TRVRP for the benefit of sensitive species and MSCP covered species without substantive efforts to alter or restrict the natural course of habitat development and dynamics.

**Recommendations**

The City of San Diego MSCP Subarea Plan calls for restoration efforts in the Tijuana River Valley. For example, the Subarea Plan recommends the restoration of Spooner's Mesa and the removal of berms along the river. Restoration of the entire valley is a long-term goal for the TRVRP as funding is secured and suitable sites are identified. The County will cooperate with the City's Flood Control towards implementing their 25 year plan, and with the San Diego County Water Authority's proposed mitigation bank, which may include breaching berms. (See Appendix C)

More than 100 acres of native habitat will be restored through:

- active restoration of a 60.2-acre parcel site west of Dairy Mart Ponds,
- active restoration of approximately 11 acres (30percent) of unauthorized pathways,
- active restoration of approximately 4 acres of narrowed trails, and
- passive restoration of approximately 25 acres (70percent) of unauthorized pathways (See Appendix D).

The narrowing of trails will provide an expansion of sensitive habitats, provide a buffer between sensitive species and park users, and still provide a safe recreational trail for equestrians, bikers, and hikers. Habitat restoration efforts will be beneficial to wildlife, native plant communities, and sensitive rare plants, especially when planned contiguous to existing native habitat (riparian, CSS or maritime chaparral). Habitat restoration is anticipated to reduce existing habitat disturbances and fragmentation within the TRVRP.

The proposed 60.2 acre habitat restoration site (see Exhibit 13) west of the Dairy Mart Ponds would substantially increase the amount of riparian scrub and riparian woodland habitat and would link to similar existing riparian and aquatic community types along the main channel of the river, creating a large block of contiguous high value habitat in the western half of the TRVRP's river valley. It would also create a buffer from the adjacent residential development to the north.

The restoration site includes an appropriate container planting palette and herbaceous seed mix. Long-term monitoring and maintenance requirements will assure that success criteria will be met and will allow for adaptive management as needed. Appendix D to this document includes soil and water testing, and in some cases excavation, to ensure that appropriate plant species are planted at the correct depth relative to the seasonally variable water table. Removal of topsoil in disturbed areas to lower the depth to the water table will minimize the seed bank of invasive weeds such as garland chrysanthemum.

1. Native plants, including rushes, sedges, and other grasses that can grow equally well in riparian and upland habitat, will be expanded to increase habitat diversity and function as nurse crops for the establishment of a successional native vegetation community. This includes removal of invasive exotic plant species, targeting giant reed, tamarisk, eucalyptus, tree tobacco and invasive herbaceous species, including garland chrysanthemum. Species for introduction include southern cattail (*Typha latifolia*), Mexican rush (*Juncus mexicanus*), three square rush (*Scirpus americanus*), and California bulrush (*Scirpus californica*) in freshwater marsh/seep habitats. Tall umbrella sedge (*Cyperus eragrostis*), creeping spike rush (*Eleocharis macrostachya*), San Diego sedge (*Carex spissa*), and knotgrass (*Paspalum distichum*) are appropriate along waterways and in areas with seasonal high water. Spiny rush (*Juncus acutus* ssp. Leopoldi) will be planted in moist, alkaline seeps, and Santa Barbara sedge (*Carex barbarae*) and toad rush (*Juncus bufonius*) will be planted in more seasonally wet to mesic upland areas.
2. Areas that are proposed to be closed and are adjacent to coastal sage scrub, maritime chaparral, and riparian habitat should be managed by active prescriptive management and restoration to encourage the establishment of natives and prevent the re-invasion of invasive plants in sensitive riparian and upland habitats. Closed areas that traverse non-

native grassland, fields, or row crop vegetation communities will be passively managed.

3. Recommended species for the restoration of closed areas and the rehabilitation of habitats on the mesa's include: California sagebrush (*Artemisia californica*), California buckwheat (*Erigonum fasciculatum*), laurel sumac (*Malosma laurina*), lemonade berry (*Rhus integrifolia*), toyon (*Heteromeles arbutifolia*), and white sage (*Salvia apiana*). San Diego County viguiera (*Viguiera laciniata*) will be added to the planting palette at appropriate locations on south facing slopes of both mesas and bladderpod (*Isomeris arborea*) will be added to restored areas in the maritime succulent shrub community on the southwest face of Spooner's Mesa. Scarifying compacted mesa trails may be required. Biological barriers such as cacti and thorny plants may be used as entrance points.
4. Closed areas on top of the mesa should be restored in the future, requiring decompaction and planting with upland scrub and grassland species. A weed abatement program to curtail garland chrysanthemum propagation will be implemented. Additional plants to be added to the palette for restoration of the mesas may include coast goldenbush (*Isocoma menziesii*), rattleweed (*Astralagus trichopodus*), golden tarweed *(Hemizonia fasiculata*), wart-stemmed ceanothus (*Ceanothus* verrucosus), golden-spined cereus (*Bergerocactus emoryi*), and deerweed *(Lotus scoparius*). Native xeric grasses such as melic grass (*Melica imperfecta*) and purple needlegrass *(Nasella pulchra*), should also be included in the seed mix for the mesa tops.

## *Exotic Species Control*

**Objectives:**

Reduce, control, or where feasible eradicate exotic invasive floral and fauna known to be detrimental to native species and/or the local ecosystem.

**Recommendations**

- Monitoring for the presence of exotic species of management concern should be conducted in conjunction with MSCP covered species monitoring.

  The cowbird population within the TJRVRP should be monitored. If an increase in the population is noted, the cowbird trapping and removal program attached as Appendix E will be implemented.

- Institute an equestrian education program regarding the potential negative impacts to native ecosystems from the accumulation of non-point source pollutants in staging areas and on frequently used trails. This could be accomplished through implantation of a signage program and interaction

between rangers and trail users. Signage should state,

> "Don't Plant a Pest! Feeding horses weed-free feed for at least 72 hours prior to park entry helps preserve our park."

- Institute volunteer trail patrols to keep trails and staging areas free of non-point source pollutants.

## *Wildlife Corridors*

**Objectives**

Provide protection for local wildlife movement corridors to ensure corridor functionality and support of daily and seasonal wildlife movements.

**Recommendations**

Use of the TRVRP trails, bird blinds, and picnicking areas will be limited to the daylight hours to avoid potential conflicts between users and medium and large mammal species that may utilize the corridor. This will avoid most potential conflicts.

Signage will be posted at each staging area denoting TRVRP hours.

All night lighting, especially at the active recreation sites, will be shielded such that it does not shine directly into the adjacent habitat. All lighting not necessary for safety reasons, will be extinguished by 10 p.m.

## *Species-specific Management (MSCP Covered)*

**Objectives**

Provide for appropriate biological monitoring and research to determine, direct, and refine habitat or species-specific management activities.

**Recommendations**

As part of the MSCP monitoring, climatic data is to be collected throughout the County. This data should be used to analyze population trend data obtained from monitoring activities (Ogden 1996).

Not all species occurring within TRVRP are expected to require species-specific management. It is expected, rather, that the other management recommendations under the Biological Element should be sufficient to protect and manage optimal habitat conditions for most, if not all, species to maintain and/or thrive within TRVRP. There are some species, however, listed as MSCP covered species in the County's Subarea Plan which require additional management measures, particularly if monitoring indicates that the general guidelines are not sufficient to maintain acceptable population levels.

In order to determine whether specific management directives should be implemented, quantitative and qualitative monitoring must be preformed to

determine the status of the sensitive species and its habitat. The County is responsible for all monitoring required within TRVRP. The TRVRP Ecological Study Dated January 2005 provides a qualitative and quantitative basis which should be expanded upon to determine the specific status of sensitive plant and animal species.

Before conducting any of the species-specific management directives provided below, each action shall be evaluated to ensure that the proposed action would not result in adverse impacts to any MSCP-covered or listed species.

## Management Directives for MSCP Covered Plant Species

### *Wart Stemmed ceanothus (Ceanothus verrucosus)*

**Site Location**

Several locations present on the mesa top east of Smuggler's Gulch.

**Vegetation Community**

Disturbed southern maritime chaparral

**MSCP Conditions (per Table 3-5)**

Habitat based and photo plot monitoring.
Management Directives: This area will be actively restored to encourage the establishment of native species and prevent the invasion of exotic plants.

### *Orcutt's bird's-beak (Cordylanthus orcuttiannus)*

**Site Location**

Recorded on Spooner's Mesa in 1989, not encountered during focused rare plant surveys in 2004.

**Vegetation Community**

Coastal sage scrub

**MSCP Monitoring Conditions**

Conduct focused surveys every 5 years.

### *San Diego barrel cactus( Ferrocactus viridescens)*

**Site Location**

Seven populations is southwest corner on south facing slopes.

**Vegetation Community**

Maritime succulent scrub & disturbed maritime succulent scrub.

**MSCP Monitoring Conditions**

Habitat based and photo plot.
Management directive includes measures to protect this species from edge effects, unauthorized collection, and include appropriate fire management to protect against a too frequent fire cycle.

## Management Directives for MSCP Covered Wildlife Species

### *Orange-throated whiptail (Aspidoscelis (Cnemidophorus) hyperythra)*

**Site Location**

Six locations throughout TJRVP, including mesa tops, Dairy Mart Ponds, and west of Hollister Street.

**Vegetation Community**

Riparian areas and coastal sage scrub

**MSCP Monitoring Conditions**

Spooner's Mesa is identified as a regional monitoring location for upland reptile species (H 21 in Ogden 1998)). Pit-fall trap arrays will be used as follows:

> A minimum of five arrays will be installed at each monitoring site, covering at least 100 acres (maximum array density of 1 array per 20 acres of suitable habitat). Arrays will be constructed and installed per the protocol developed by USGS in association with the wildlife agencies.
> Monitoring Frequency. Pit-fall trap arrays will be opened for a minimum 5-day interval and checked daily. One 10-day sampling period or two 5-day sampling periods will occur in May/June, and one 5-day sampling period will occur in August/September. Each site will be monitored every other year, with half of the sites monitored in a given monitoring year.
> Data Collection and Analysis. One biologist and one wildlife technician will check and record all information from a monitoring site in 4 hours (including 1 hour travel time). All data will be collected on standardized forms (Appendix F) to facilitate data transfer to an electronic format. Field data will be analyzed and a report prepared that includes the following for each site: (1) list of all reptile species captured or observed within 100 ft of each pit-fall trap array; (2) relative abundance of each species; (3) species diversity index (e.g., Simpson index or Shannon-Weaver Index); and (4) an assessment of. any changes to the physical setting or immediate surroundings of each site (fires, development, obvious habitat disturbance, etc.).

### *San Diego Horned Lizard (Phrynosoma coronatum blainvillei)*

**Site Location**

Dune habitat of TRNERR and TSNWR. Not detected in focused herpetological surveys in 2004.

**Vegetation Community**

Dune and coastal sage scrub

**MSCP Monitoring Conditions**

Same as Orange-throated whiptail

## *Cooper's hawk (Accipiter cooperii)*

**Site Location**

Present and breeding in willows and eucalyptus trees in Smuggler's Gulch and river valley.

**Vegetation Community**

Riparian woodland nesting
Forages in adjacent habitats including suburban landscaping

**MSCP Monitoring Conditions**

Habitat based. The preservation of riparian and adjacent upland habitats will provide adequate nesting and foraging habitat.

### *Rufous-crowned sparrow (Aimophila ruficeps canescens)*

**Site Location**

A specific location was not noted during the 2004 surveys. This species is commonly found in coastal sage scrub or chaparral.

**Vegetation Community**

Coastal sage scrub and chaparral

**MSCP Monitoring Conditions**

Habitat based.
Management directives must include maintenance of dynamic processes, such as fire, to perpetuate some open phases of coastal sage scrub with herbaceous components.

## *Northern harrier (Circus cyaneus)*

**Site Location**

Abundant in winter hunting in fields north of Monument Road, atop Spooner's Mesa.

**Vegetation Community**

Communal flocks roost/breed in agricultural fields and salt marshes.
Foraging in grasslands

**MSCP Monitoring Conditions**

Harriers tolerate patchiness in their habitat, exhibit nest area fidelity, and forage

within four miles of their nests (reference). Additional conservation of grassland habitats should be a priority and one of the primary factors in the design of preserves in the major amendment areas.

The City of San Diego Subarea Plan includes conservation of two known nesting sites in the Tijuana River Valley, and maintenance of some agricultural lands (available for foraging harriers) within the TRVRP. The TRNERR will continue to enhance marshlands and manage for nesting harriers. Some existing grasslands and agricultural lands at the outer limits of the foraging distance for nesting harriers will be developed. With the addition of over 4,000 acres of agricultural and disturbed lands to the City of San Diego's preserve, adequate foraging areas within this area are conserved. Food production for harriers on preserve lands can be enhanced.

Agricultural and disturbed lands within four miles of nesting habitat will be managed to provide foraging habitat; include an impact avoidance area (900-foot or maximum possible within the preserve) around active nests; and include measures of maintaining winter foraging habitat in preserve areas. The preserve management coordination group shall coordinate efforts to manage for wintering northern harriers' foraging habitat within the MSCP preserves.

## *Southwestern willow flycatcher (Empidonax traillii extimus)*

**Site Location**

Three unpaired migrants observed over several years.

**Vegetation Community**

Dense riparian habitats, prefers dense growths of willows, broom or other shrubs and medium sized trees, within 20 meters of water or very saturated soil.

**MSCP Monitoring Conditions**

Habitat based.
Provide appropriate successional habitat, upland buffers for all known populations, cowbird control, and specific measures to protect against detrimental edge effects to this species. Any clearing of occupied habitat must occur between September 1 and May 1 (i.e., outside of the nesting period).

## *Peregrine falcon (Falco peregrinus)*

**Site Location**

Throughout TRVRP.

**Vegetation Community**

Nesting and wintering habitats are varied, including wetlands, woodlands, other forested habitats, cities, agricultural areas, and coastal habitats.

**MSCP Monitoring Conditions**

Habitat based. Provide foraging habitat through protection of wetlands and riparian habitats.

## *Coastal California gnatcatcher (Polioptila californica californica)*

**Site Location**

Six pairs recorded on mesas slopes.

**Vegetation Community**

Coastal sage scrub.

**MSCP Monitoring Conditions**

Provide measures to reduce edge effects and minimize disturbance during the nesting period, fire protection measures to reduce the potential for habitat degradation due to unplanned fire, and management measures to maintain or improve habitat quality including vegetation structure. No cleaning of occupied habitat within TRVRP may occur between March 1 and August 15 without an incidental take permit.

## *Light-footed clapper rail (Rallus longirostris levipes)*

**Site Location**

One pair detected at Dairy Mart Ponds. (Note: The EIR states two pairs were detected; however, the technical survey report states only one pair was detected.)

**Vegetation Community**

Salt marshes and brackish and freshwater environments.

**MSCP Monitoring Conditions**

Specific measures to protect against detrimental edge effects to this species such as, educating the public of the potential harm from feral cats and unleashed pets.

## *Least Bell's vireo (Vireo bellii pusillus)*

**Site Location**

Abundant and breeding in riparian habitats.

**Vegetation Community**

Riparian

**MSCP Monitoring Conditions**

Provide measures to provide appropriate successional habitat, upland buffers for all known populations, cowbird control (see Exotic Avian Species Control section above), and specific measures to protect against detrimental edge effects to this species. Any clearing of occupied habitat must occur between September 15 and

March 15 (i.e., outside of the nesting period) unless an incidental take permit is obtained.

# Cultural Resources Element

## Cultural Goals

### Goal: Identify, record, and assess significance of all cultural resources within the Proposed Project Area.

Objective:

- o A qualified specialist should survey any areas of the Proposed Project that have not previously been surveyed. The survey should include:
- A complete recordation of the resources in compliance with the California Office of Historic Preservation guidelines.
- An assessment of each site found for eligibility as a Historical Landmark for the County of San Diego and/or CRHR/NRHP.
- Conduct and record oral histories of the descendants of recent owners to better establish the American Ranching period history of the Tijuana River Valley.

**Goal: Preserve, protect and avoid significant cultural resources and ensure that they are available for appropriate uses by present and future generations**.

Objective:

- All pertinent federal, state, and local statutes relevant to cultural resources shall be followed at all times.
- No ground disturbing activities are allowed on or in any cultural resource site until the impacts have been assessed and mitigation measures established.
- Any person conducting research of any kind shall obtain a Right of Entry Permit, which outlines the precautions to be taken to preserve and protect cultural resources.
- Buried sites area a concern in the TRVRP. Any trenching, excavating, or digging shall be monitored by a qualified archaeologist and Native American consultant consistent with the County of San Diego Cultural Resources guidelines.

**Goal: Identify, eliminate, and/or reduce/mitigate impacts to the cultural resources from natural or human-caused events.**

**Objectives:**

- Signs shall be stationed at all trailheads that notify users that sensitive cultural resources cannot be damaged.

- Signs shall be posted throughout the TRVRP that indicate that removal of any archaeological material is prohibited by law.
- When people are identified who are suspected of vandalism to cultural resources the appropriate law enforcement authorities shall be notified.
- Natural impacts to cultural resources (fire, erosion, floods, etc) shall be identified and impacts prevented or mitigated.
- All trails and roads in the Proposed Project area shall avoid impacts to any cultural resources to the maximum extent practicable.
- Safeguards against incompatible land and resource uses shall be identified to protect all cultural resources.

**Goal: Conduct frequent consultation with the appropriate Native American Tribe in order to identify appropriate management of precontact and ethnographic cultural resources.**

Objectives:

- Traditional uses by the tribes shall be encouraged.
- All activities by Native Americans in the proposed project area shall be conducted with a Right of Entry Permit specifically designed for the Tijuana River Valley. Obtaining Right of Entry Permits will be the responsibility of the tribes. The County Resource manager will be responsible for issuing the permits.
- The tribes shall be encourage to participate in evaluation, recordation, protection and preservation of cultural resources

**GOAL: Establish a program to educate and interpret to the public the cultural resources of the Proposed Project area**

Objectives:

- Develop signage at trailheads and along trails that outlines the precontact and post-contact history of the Proposed Project area.
- Develop signage at trailheads and along trails that discusses the importance of preservation of sites, avoidance of impacts to sites, and preservation of artifacts in place.
- Establish a public education series which discusses the Native American history and the Spanish, Mexican, and American history of the Proposed Project area.

## Paleontology Element

### Objective

Provide protection of the paleontological resources within the TRVRP.

### Recommendation

Ground disturbing activities within areas characterized by imported fill or disturbed alluvium are not considered likely to result in adverse impacts to significant paleontological resources. However, all ground disturbing activities within the San Diego, Bay Point, and Lindavista formations are likely to result in adverse impacts to significant paleontological resources unless proper mitigation measures are implemented. Fossils are an important, nonrenewable scientific resource. The destruction of fossils makes biological records of ancient life unavailable for study by scientists and would thus represent a significant adverse impact on the region's paleontological resources. However, implementation of proper mitigation measures can reduce adverse impacts to these paleontological resources.

Impacts to San Diego Bay Point and Lindavista formations should be avoided.

Surveys of these formations should be conducted yearly to assure no impact from fossil hunting has occurred. If impacts are occurring, remedial actions will be taken in consultation with paleotological professionals.

## Public Use/ Facility Maintenance Element

### Goal

Provide appropriate recreational opportunities for the public. This plan has adopted a philosophy of allowing for these opportunities where the type and magnitude of such recreation would not result in substantive short or long-term detriment to the biological or cultural resources.

Implement the ASMD in a coordinated manner, manageable within the fiscal resources of the County DPR, and conform to the requirements of the MSCP.

### Objective

Develop recreational opportunities that are compatible with the preservation of the biological and cultural resources within the TRVRP.

Provide an overview of the property's operation and maintenance and establish the foundation for future application of management funding.

Maintain sufficient access to the TRVRP and coordination with Emergency Service organizations, in the event of a natural disaster, protect human lives.

Activities allowed within the preserve must be consistent with this ASMD.

The following activities are typically precluded on land which is dedicated as an open space easement to the County: grading, excavation, placement of soil, sand, rock, gravel or other material, clearing of vegetation, construction, erection or placement of any building or structure, off-road vehicular activities, trash dumping or use for any purpose other than as open space, or planting of vegetation materials.

The exceptions to these prohibitions generally include the following:

- Selective clearing of vegetation by hand to the extent required by the fire authorities for the express purpose of reducing an identified fire hazard.

- Activities required to be conducted pursuant to a revegetation, habitat management or landscaping plan approved by the Director of Planning and Land Use.

- Vegetation removal or application of chemicals for vector control purposes where expressly required by written order of the Department of Environmental of the County of San Diego, in a location and manner

approved in writing by the Director of Planning and Land Use of the County of San Diego.

- Existing uses and Recreational Activities identified in the planning documents.
- Policing by local, State and Federal law enforcement agencies and fire protection agencies as necessary.
- Scientific and biological uses.
- Necessary infrastructure.
- Trails including equestrian, hiking and bicycles in accordance with the final EIR, December 2006.

### Unauthorized Uses

In order to protect the cultural and biological resources in the TRVRP, the following are prohibited inside the TRVRP:

- Off-road vehicles (except as authorized by the CBP)
- Domestic animals, except horses and leashed dogs
- Smoking
- Campfires
- Firearms (except authorities such as CBP or Sheriff)
- Air guns
- Archery devices
- Slingshots
- Fireworks
- Explosive devices
- Screens for sifting soils
- Metal detectors
- Geocaching
- Littering
- Dumping
- Open flames
- Paintball activities

## *Roads*

**Objectives**

Provide for public access where the type and magnitude of such access would not result in substantive short or long-term detriment to the natural or cultural resource environment.

**Recommendations**

The TRVRP can be accessed from various roads surrounding the park. These roads include: Dairy Mart Ponds Road, Monument Road, Hollister Street, and Saturn Blvd. There are staging areas located on these roads, including a large eastern staging area on Monument Road that will be built as a component of the Trails and Habitat Enhancement Project.

Many of the dirt roads and trails are used by the U.S. Customs and Border Protection Agency (CBP). The Trails and Habitat Project was prepared in consultation with the CBP. The shared CBP roads and trails are shown in the Formal Trail Network, Exhibit 14. In addition, CBP has retained the right to use other roads and trails as necessary during a pursuit.

## *Trails*

**Objectives**

Provide for public access where the type and magnitude of such access would not result in substantive short or long-term detriment to the natural or cultural resource environment.

Restore degraded habitats and reduce detrimental edge effects through stabilization of eroded trails and strategic revegetation.

**Recommendations**

The Trails and Habitat Enhancement Plan formalized a trials project as described in the EIR and shown in Exhibit 14. The existing informal network consists of unplanned and unauthorized dirt roads and pathways within the TRVRP. The 22.5 mile formal trail system includes the following types of trails:

- 6.5 miles of six-foot-wide multi-use trails (i.e., equestrian/ bicycle/pedestrian) within existing dirt road and pathway alignments;
- 6.6 miles of multi-use trails to be shared with U.S. Customs and Border Protection Service (CBP) authorized and emergency use[1];
- 7.1 miles of four-foot-wide equestrian/pedestrian trails within existing dirt road and pathway alignments;
- 0.2 miles of pedestrian/equestrian trails shared with CBP authorized and emergency use within existing road paths;
- 0.3 miles of six-foot-wide multi-use trails to be constructed along two new alignments, including a new steel semi-truss multi-use recreational bridge over the Tijuana River;
- 0.5 miles of six-foot-wide multi-use trails within the Community Garden;
- 0.2 miles of 15-foot-wide multi-use trails within ballfields; and
- 1.1 miles of existing sidewalk (5.5-foot-wide) and bike lanes (four-foot-wide) on the Dairy Mart Road bridge over the Tijuana River.

*Trail Closures*

Where closure of a trail is recommended for maintenance or remediation, closure actions will be accompanied by educational support.

The trail should be posted with signage that indicates the closure and the primary reason for the closure (steep slopes leading to erosion issues, sensitive biological resource impacts, etc.). Whenever possible, postings should also include a suggested substitute route. Finally, signs should provide contact

information for anyone wishing to provide input on trail use or gain additional information regarding closures.

Once posted, closed trails should be blocked with split rail fencing or rock borders. These blocks should be constructed in a manner that helps to prevent circumvention. Enforcement of these closures would require increased patrols of these areas and investigations to determine if the closures are effective.

## *Public Access*

**Objectives**

Ensure that all members of the community have an opportunity to enjoy TRVRP.

Provide for daily access from sunrise to sunset and ensure access for emergency services.

**Recommendations**

Establishment of an eastern trailhead staging area consisting of two acres along the west side of Dairy Mart Road, north of the Tijuana River. The staging area will provide trail users with various facilities (such as day-use parking, equestrian hitching posts, benches, and trail maps) to assist them at the beginning or end of their trips into or out of the TRVRP. Additional parking can be found at the Ranger Station located on Monument Road and at the Bird and Butterfly Garden located on Hollister Street. (Exhibit 15)

All formal trailheads and designated staging areas will be clearly posted with interpretive and directional signage depicting the location of the trail relative to the trail network in the TRVRP. General locations where signs and benches would be installed are shown on Exhibits 16. Information regarding trail length and other pertinent information would also be posted at the trail heads. Interpretive signage would be posted at designated scenic vistas and overlooks providing additional information relative to the view provided. Benches will also be provided at all official trailheads and scenic overlooks. Two bird observation blinds will be provided south of the Dairy Mart Ponds, and a third would be located in the northwestern portion of the TRVRP, south of Sunset Avenue and west of Saturn Boulevard.

The Americans with Disabilities Act (ADA) contains regulations that apply to “buildings”. The Regulatory Negotiation Committee on Accessibility Guidelines for Outdoor Developed Areas was organized to develop similar regulations for “outdoor developed areas”. The Regulatory Negotiation Committee reached consensus on the accessibility guidelines for newly constructed and altered outdoor-developed areas covered by the ADA. The guidelines proposed by the committee include consideration of the latest information, design, and construction practices in existence (The Access Board 1999). There are also

disabled access regulations for outdoor facilities currently in effect at the state level.

All parking and staging areas will be ADA compliant. In addition, there is an ADA trail located near the Bird and Butterfly Garden.

## *Public Education*

**Objectives**

Develop and promote outreach, educational, and volunteer opportunities that advance the management, monitoring, and stewardship resources available and objectives of the ASMD.

**Recommendations**

Development of an internet site would support the Public Education objective. A web site could be an effective tool for conveying information on the rules and regulations, special events, special biological/seasonal happenings (*e.g.*, spring flowers in bloom, bird migration peaks, butterfly flight season), and volunteer opportunities. Opportunities for educational trail-side signage and educational kiosks should be identified. In addition, signage provided at access points and on trail maps provides a form of education. When possible, the ranger, park aide, or volunteers should organize and conduct interpretative walks or programs.

## *Emergency Access and Fire Management*

**Objectives**

Provide a safe recreational experience for TRVRP visitors.

**Recommendations**

Prepare and implement a Site Emergency Response Plan (SERP). The SERP should be attached to the ASMD as an appendix once finalized.

## *Trail and Road Maintenance*

**Objectives**

Provide for public access where the type and magnitude of such access would not result in substantive short or long-term detriment to the natural or cultural resource environment.

Restore degraded habitats and reduce detrimental edge effects through stabilization of eroded trails and strategic revegetation.

In addition, maintenance should minimize the need for corrective management actions or trail and road closures.

**Recommendations**

DPR Operations Staff will have management responsibility for day to day activities. Funds for annual operation and maintenance expenses should be identified within the Parks and Recreation budget. Trail maintenance and road maintenance should be undertaken outside of the breeding season, to minimize disturbance.

## *Fencing and Gates*

**Objectives**

Prohibit unauthorized access into sensitive areas within the TRVRP.

**Recommendations**

Fencing of the property in its entirety is not recommended due to expense and potential wildlife movement impacts. Temporary split rail fencing should be installed around restoration areas to protect these areas from off-road vehicle activity. Gates should prevent the entry of vehicles including off-road vehicles, horses, and bicycles to the extent feasible. Entry by key should be provided for the necessary easement access, maintenance work, fire clearance, site inspection, patrols, or any other official use. Any unauthorized, access points to TRVRP used by off-road vehicles should be blocked-off with boulders or some other effective, natural material. All of the above fencing and signage recommendations should be monitored for vandalism, breakage, or weathering by the rangers on a weekly basis. Problems should be reported to the appropriate maintenance staff and addressed on an as needed basis.

## *Trash and Litter Removal*

**Objectives**

Provide a safe and healthy environment for TRVRP users.

Remove any debris that may wash down the Tijuana River Valley from the east.

**Recommendations**

Trash receptacles will be placed at all parking areas and picnic areas. Trash receptacles will be designed to be secure from intrusion by wildlife species. DPR Operations Staff will regularly empty trash receptacles, at least twice a week or as deemed necessary.

## *US Customs and Border Patrol*

**Objectives**

Provide areas for CBP to perform their core functions while minimizing the potential for conflict with other TRVRP users.

**Recommendations**

Many of the dirt roads and trails are used by the U.S. Customs and Border Protection Agency (CBP). The Trails and Habitat Enhancement Project was

prepared in consultation with the CBP. The shared CBP roads and trails shared with CBP are shown in the Formal Trail Network, Exhibit 14. In addition, CBP has retained the right to use other roads and trails as necessary during a pursuit.

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**Exhibit 1 Vicinity map**

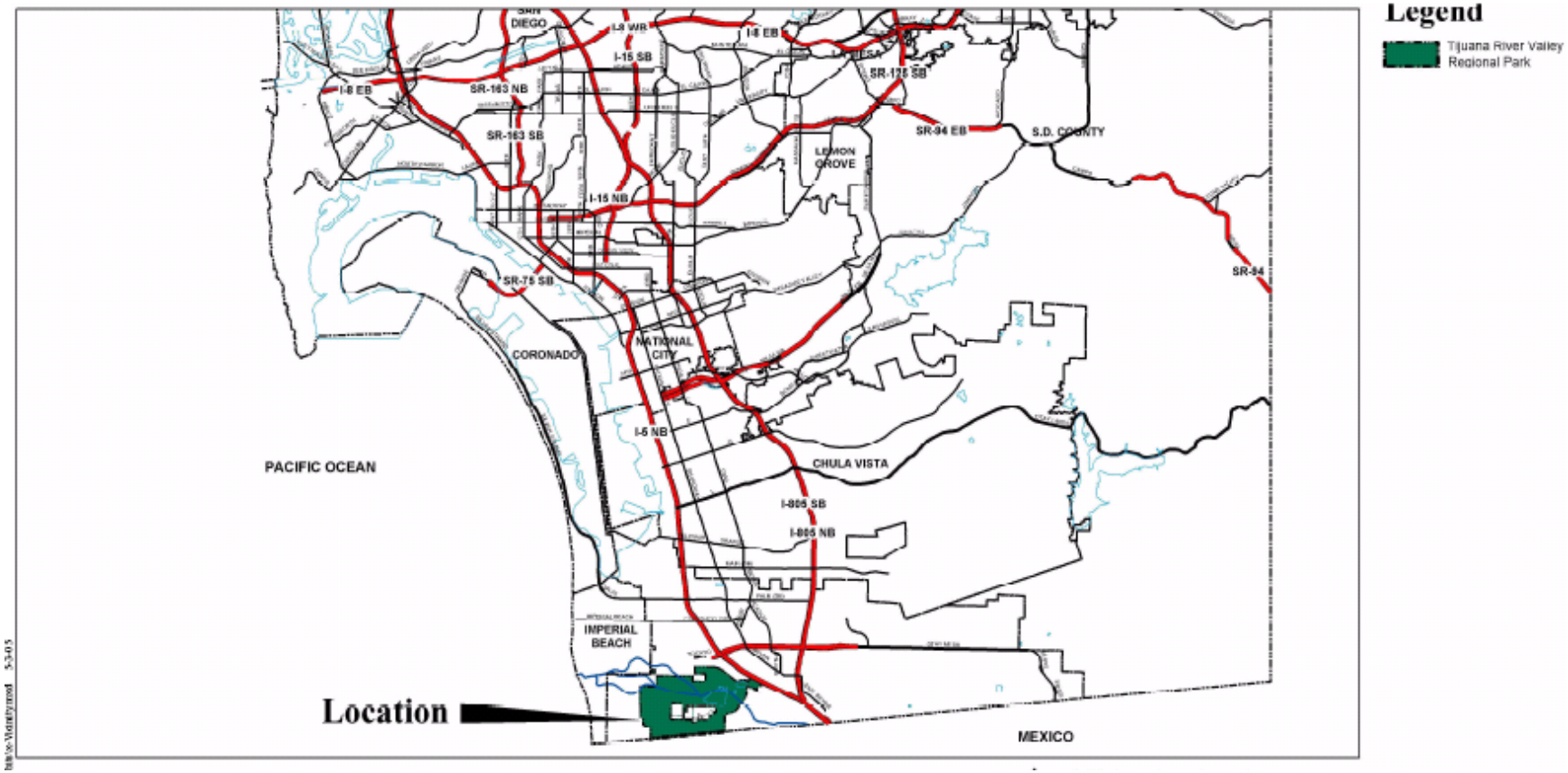
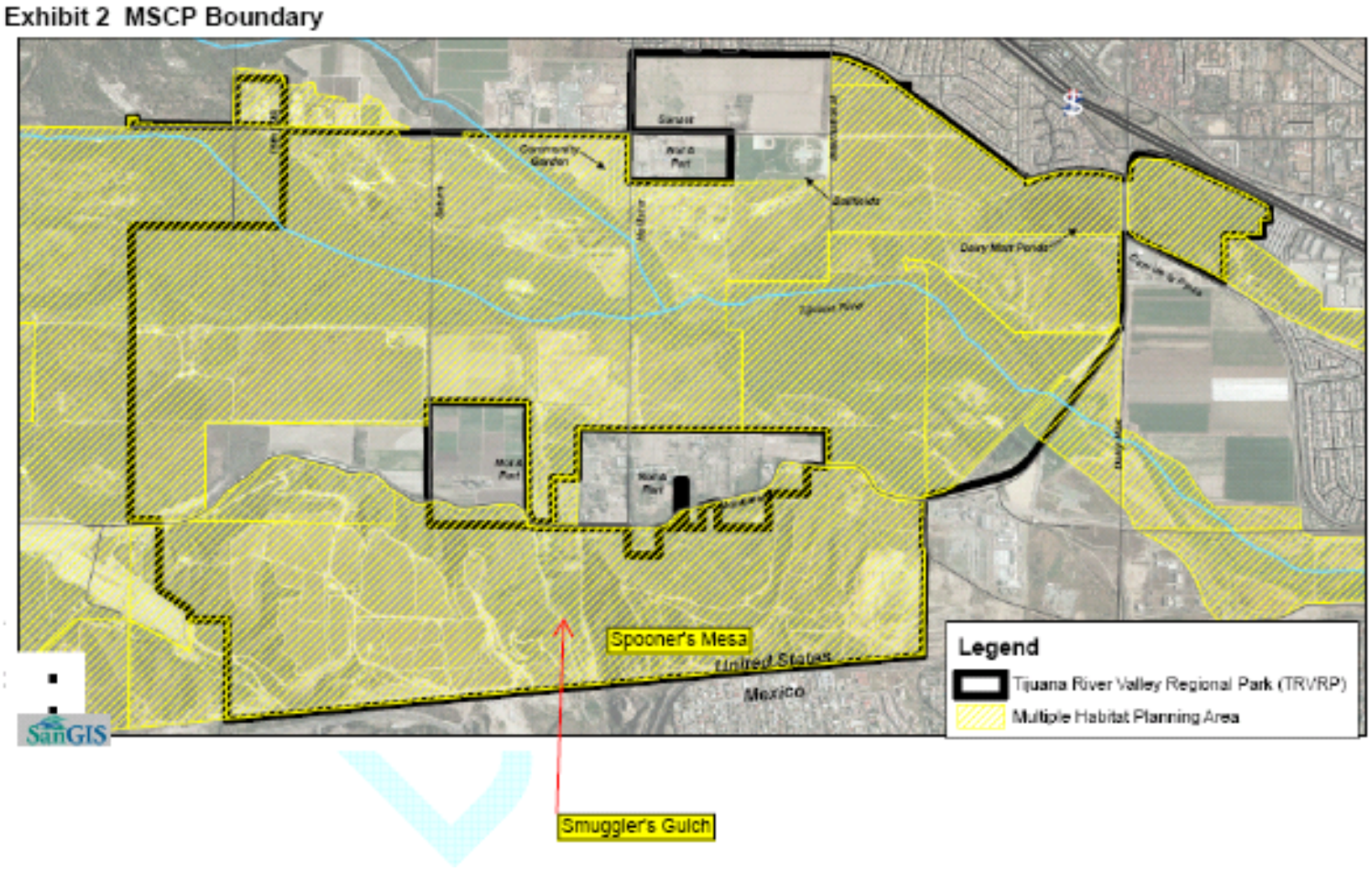
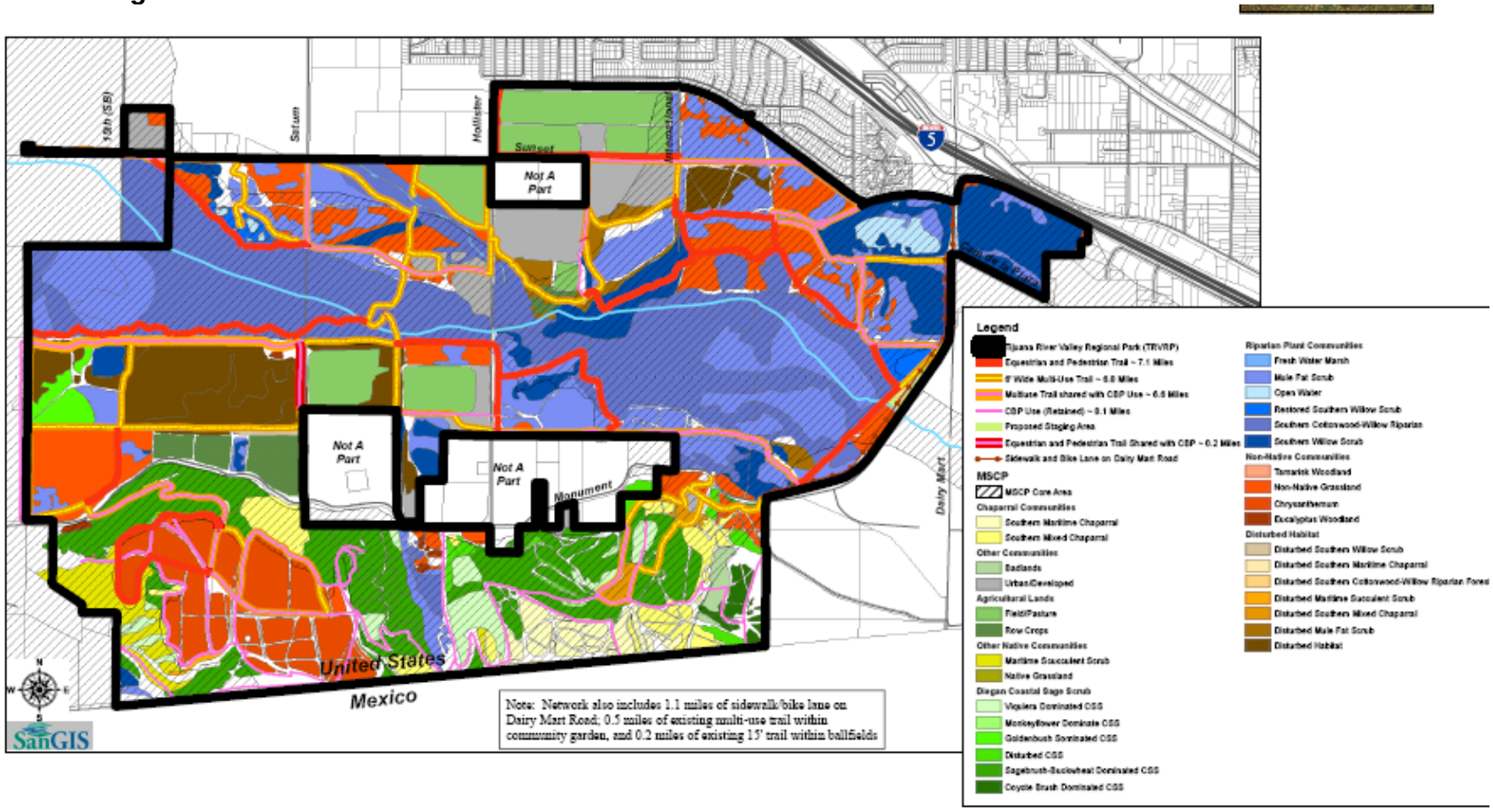


**Exhibit 2 MSCP Boundary**



## Exhibit 3 Vegetation Communities



## Exhibit 4 Sensitive Plant Locations

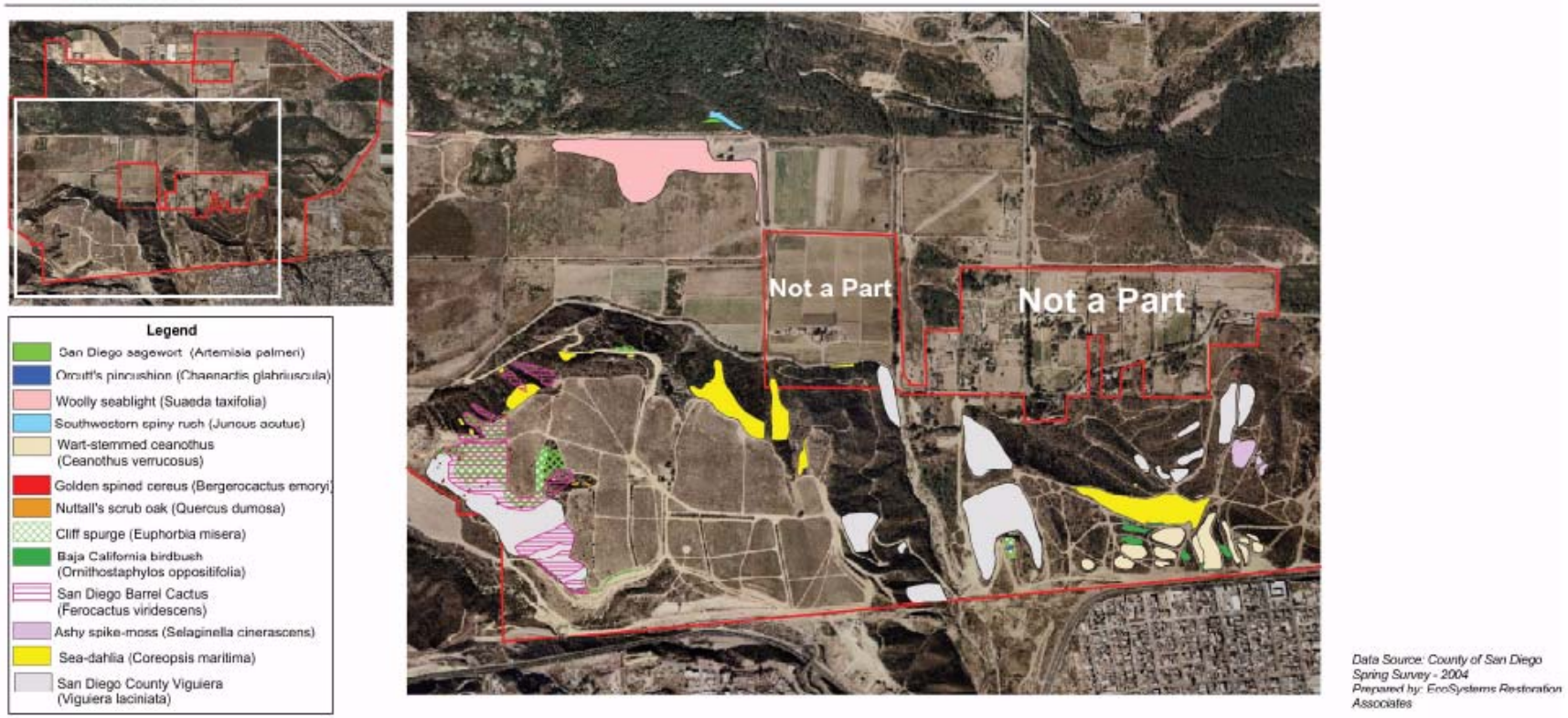
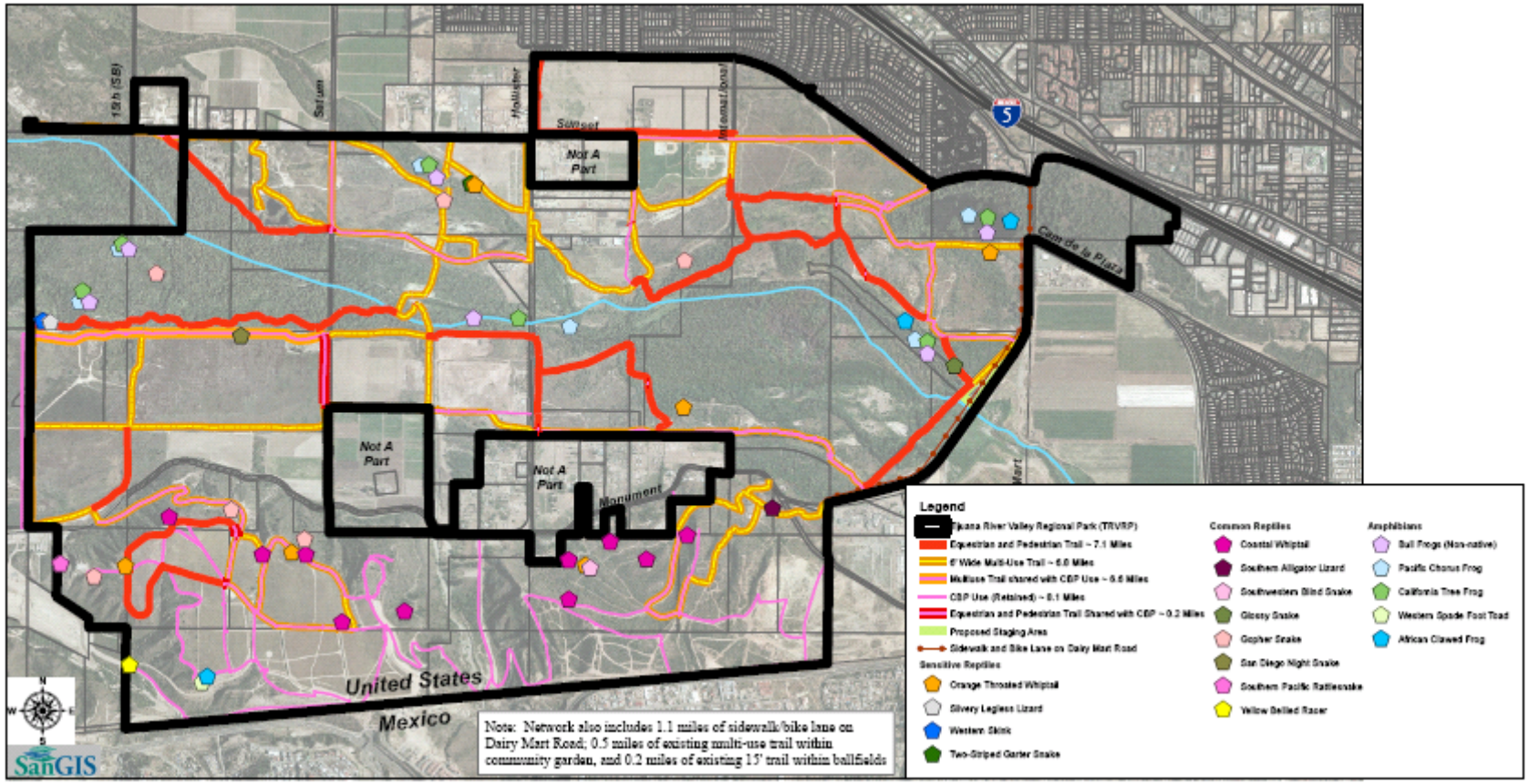
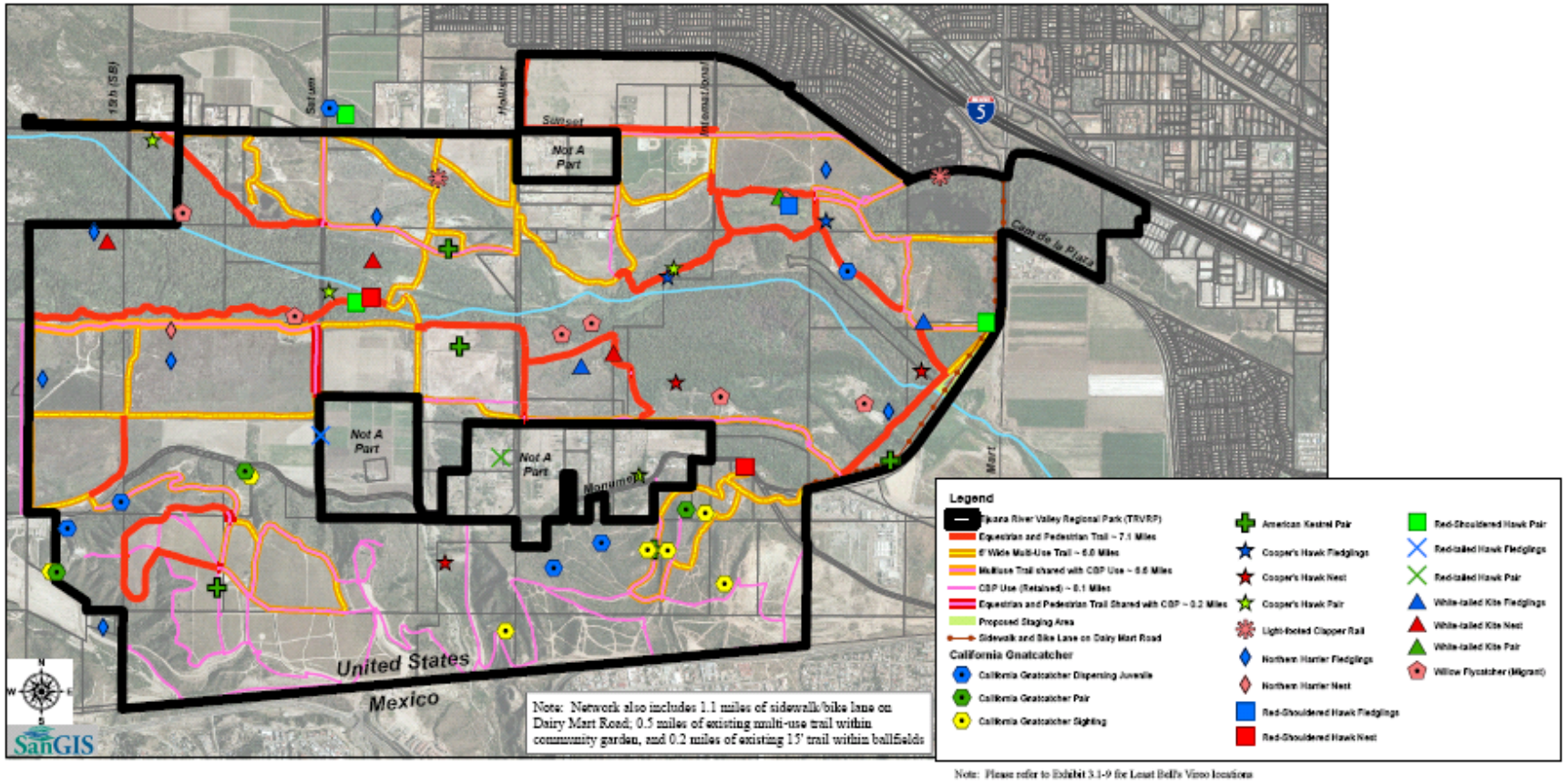


**Exhibit 5 Herptile Species Locations**

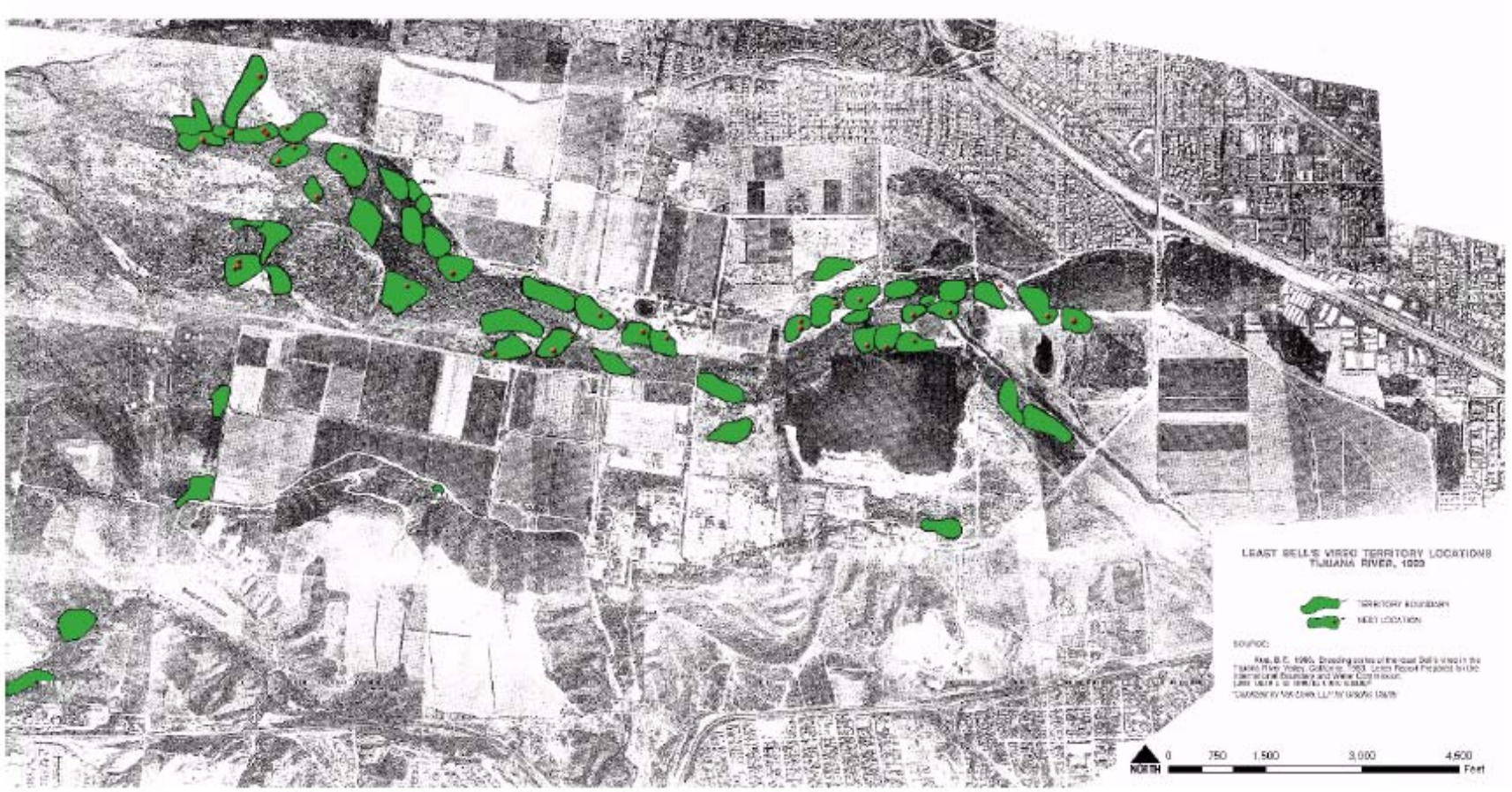


## Exhibit 6 Sensitive Bird Locations




Note: Please refer to Exhibit 3.1-9 for Least Bell's Vireo locations

**Exhibit 7 Least Bell's Vireo Locations 1993**



## Exhibit 8 Least Bell's Vireo Locations 1998

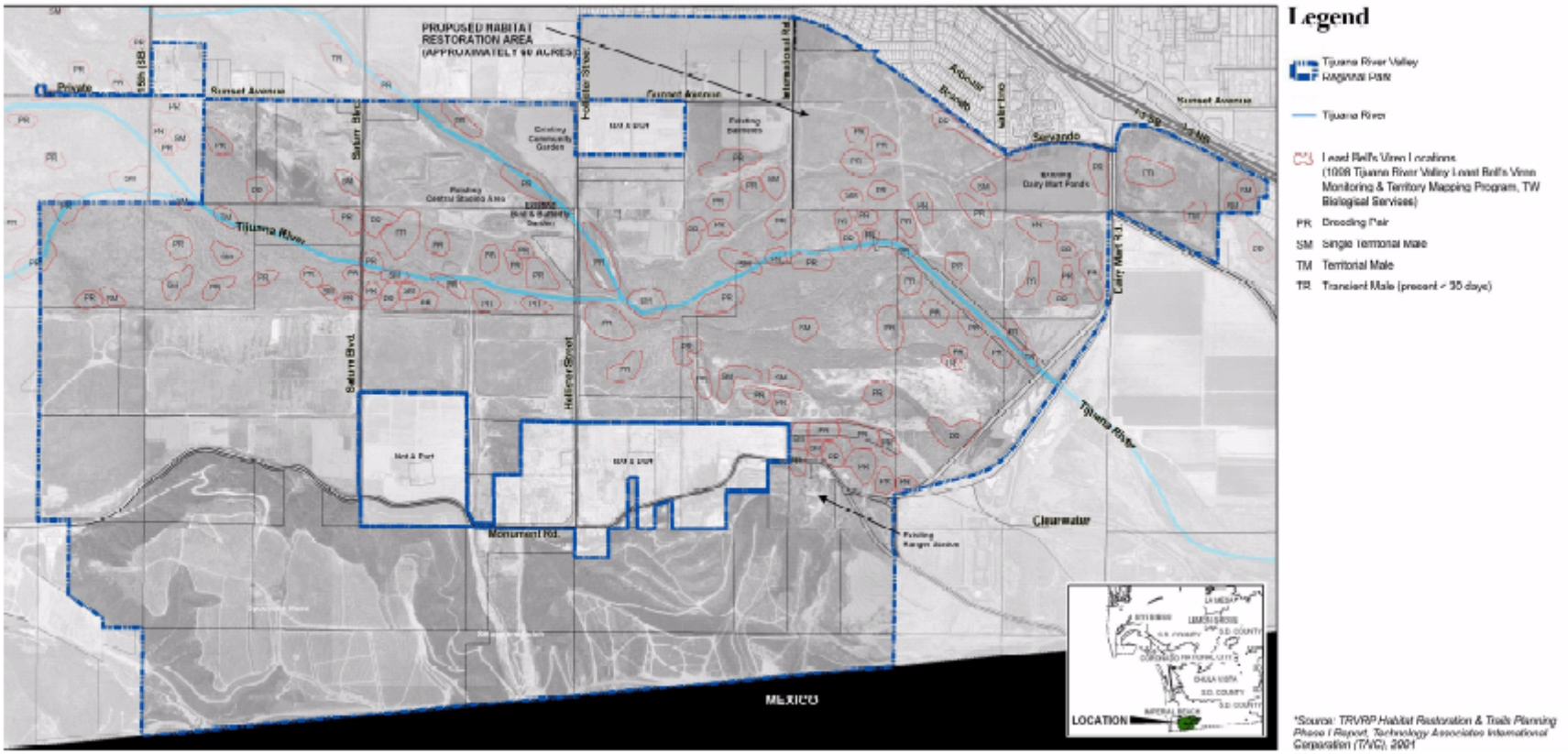
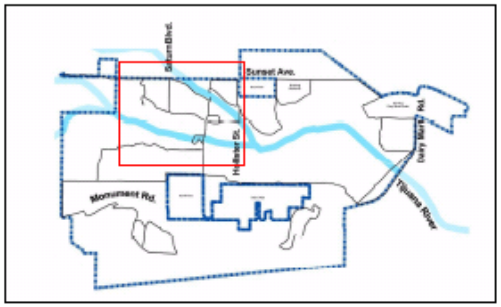


**Exhibit 9 Least Bell's Vireo Locations 2001**



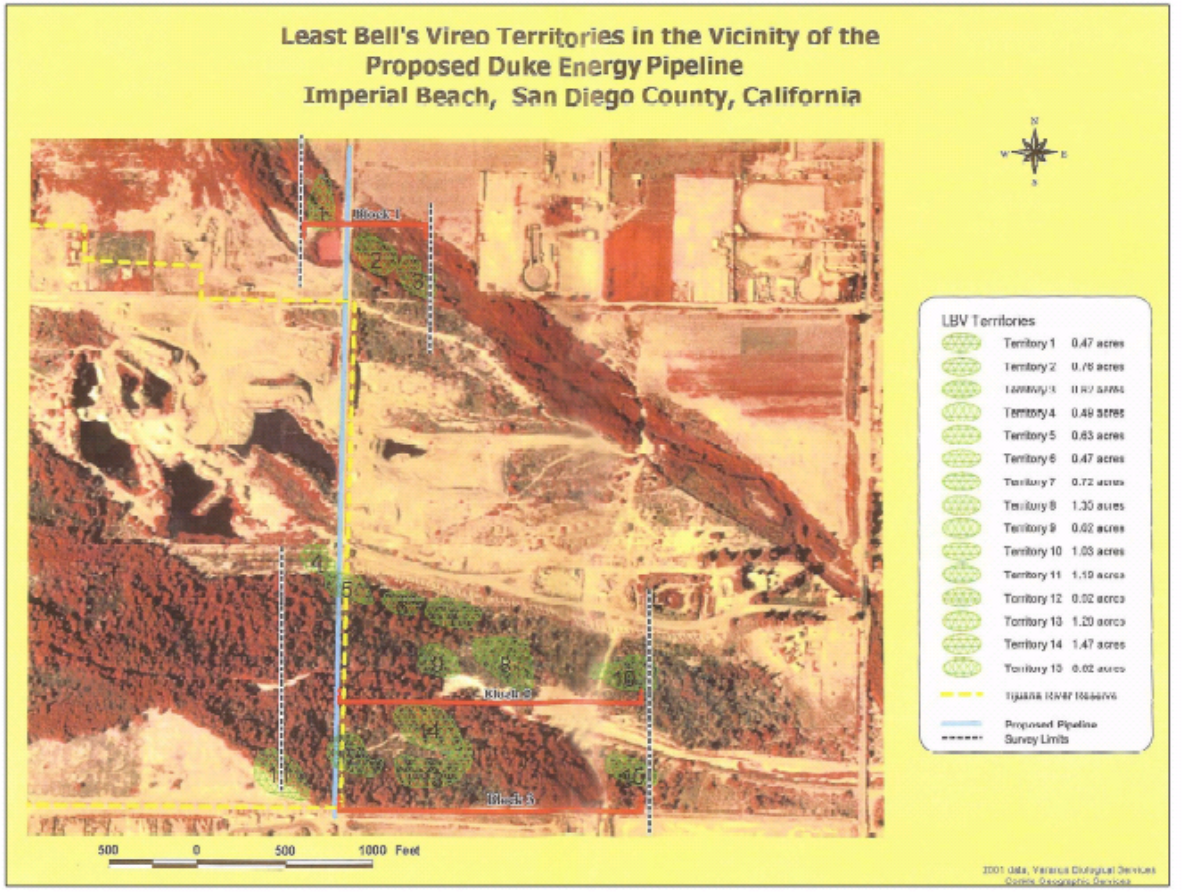



**Exhibit 10 Least Bell's Vireo Locations 2004**

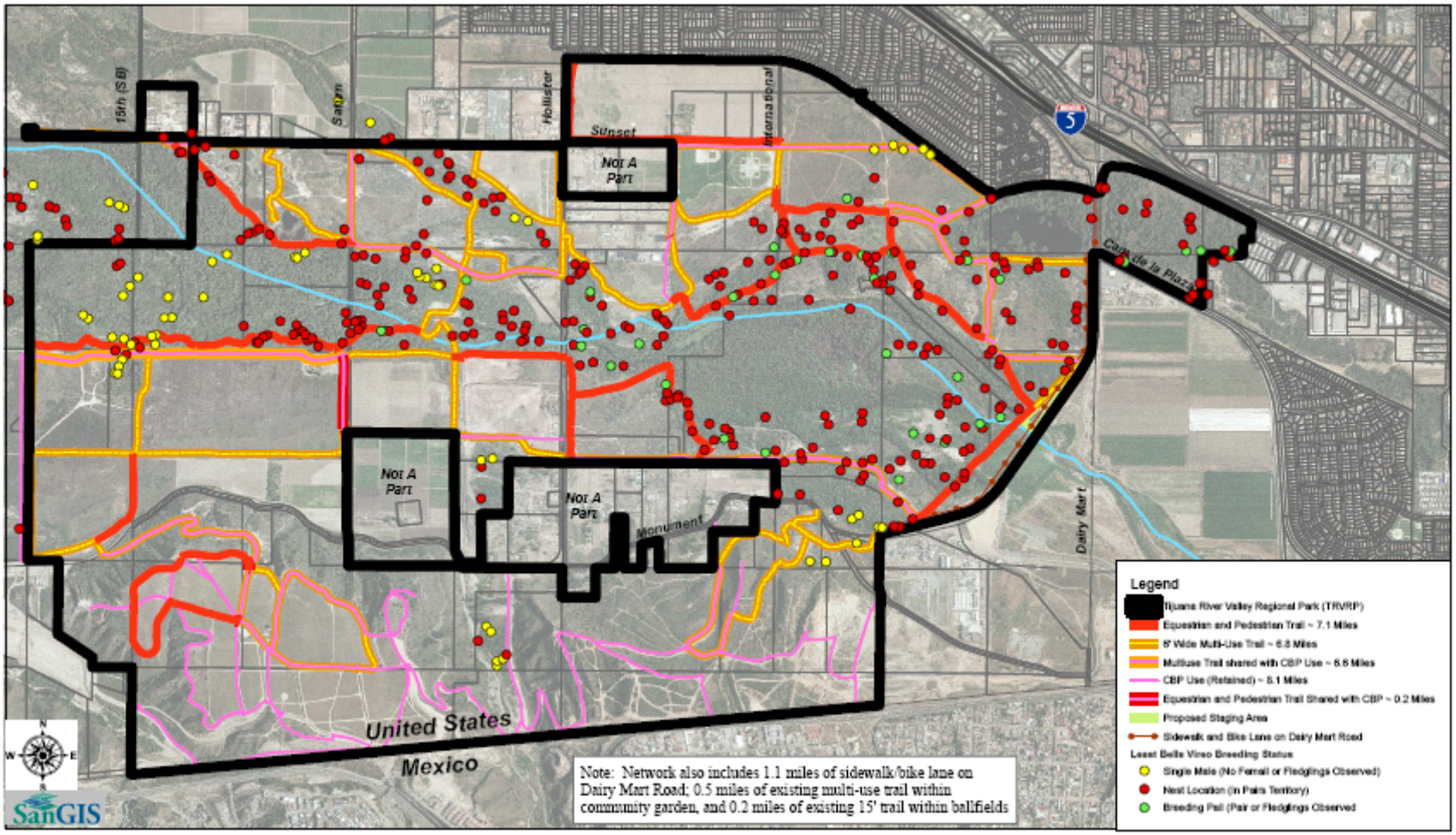


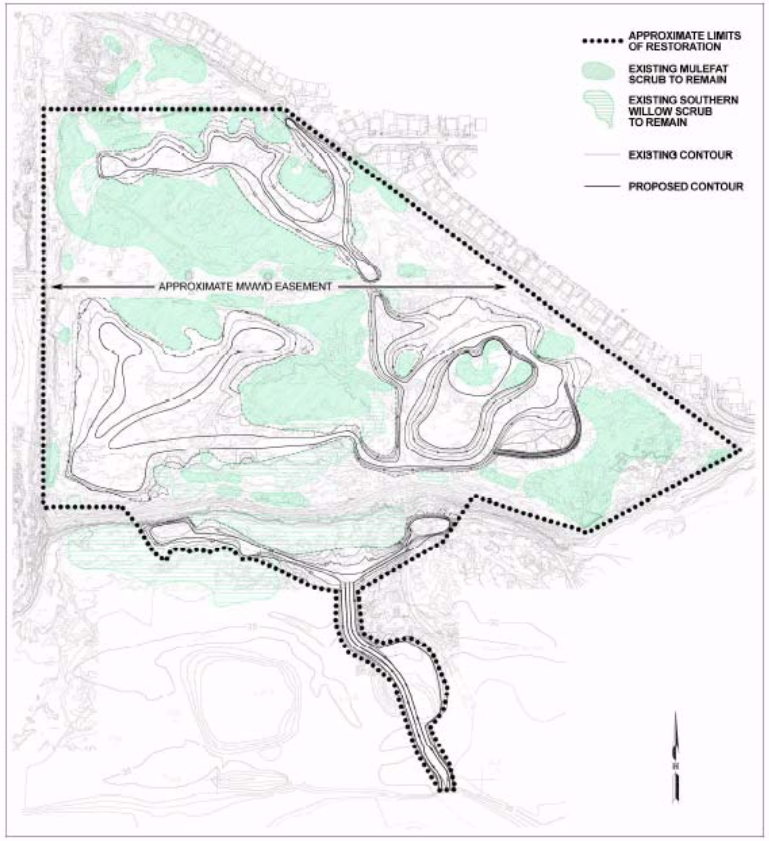
**Exhibit 11 Cultural Resources**

## CONFIDENTIAL – NOT INCLUDED

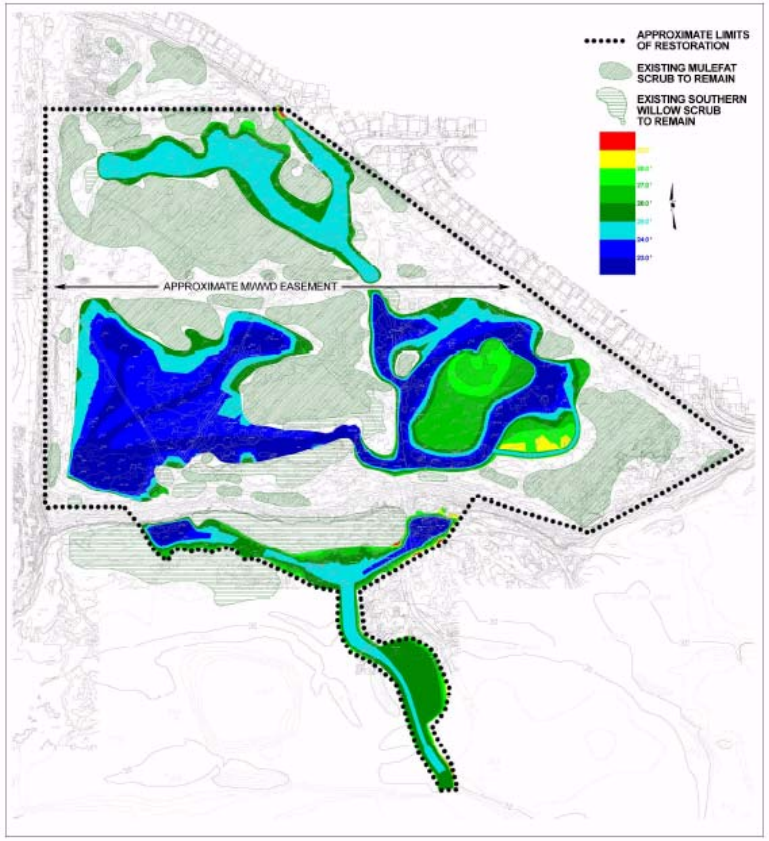
**Exhibit 12 Paleontologically Sensitive Areas**

## CONFIDENTIAL – NOT INCLUDED

**Exhibit 13 Conceptual Restoration Plan**




Proposed Grading




Proposed Elevations

**Exhibit 14 Trails Plan**

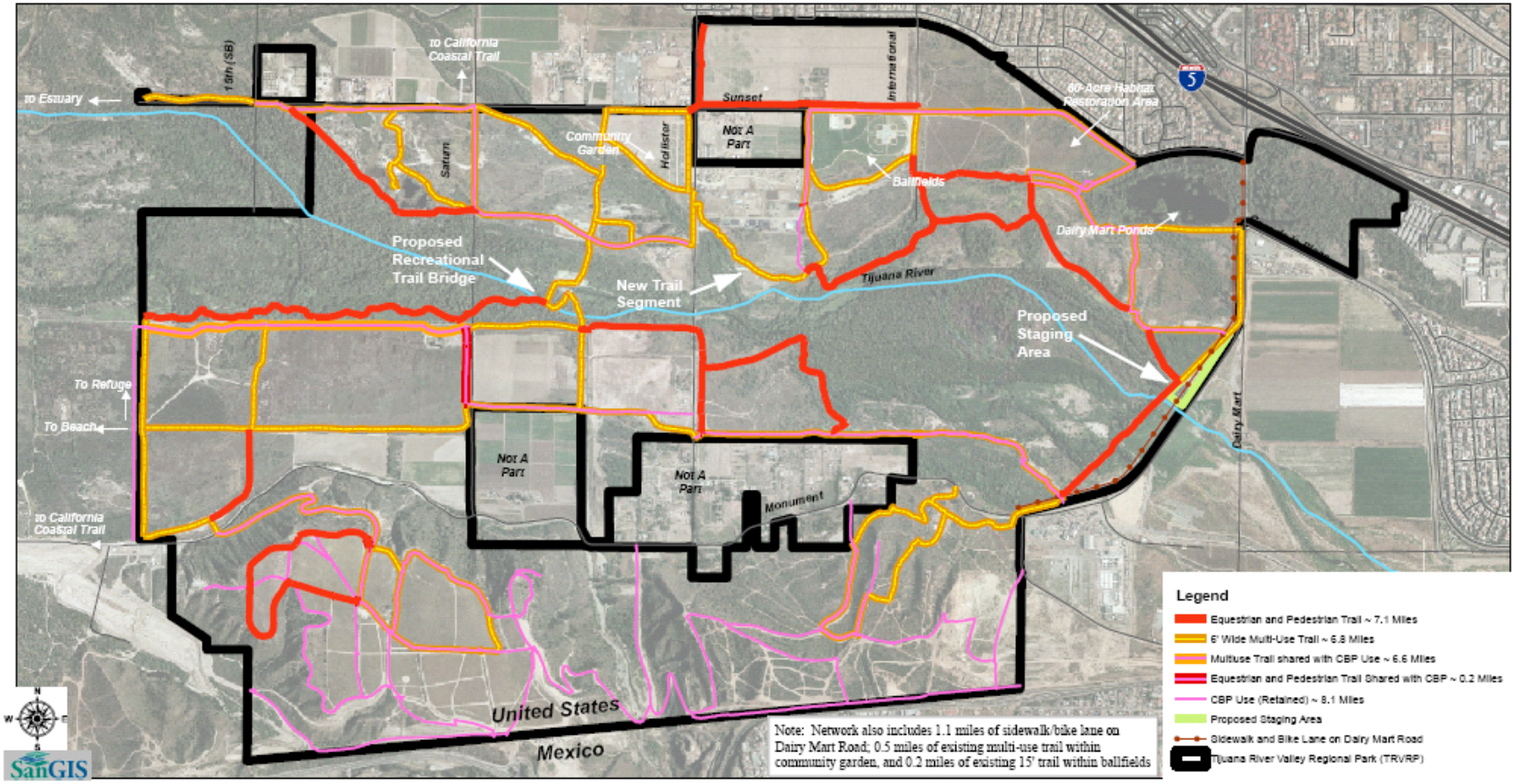


**Exhibit 15 Trail Amenity Locations**

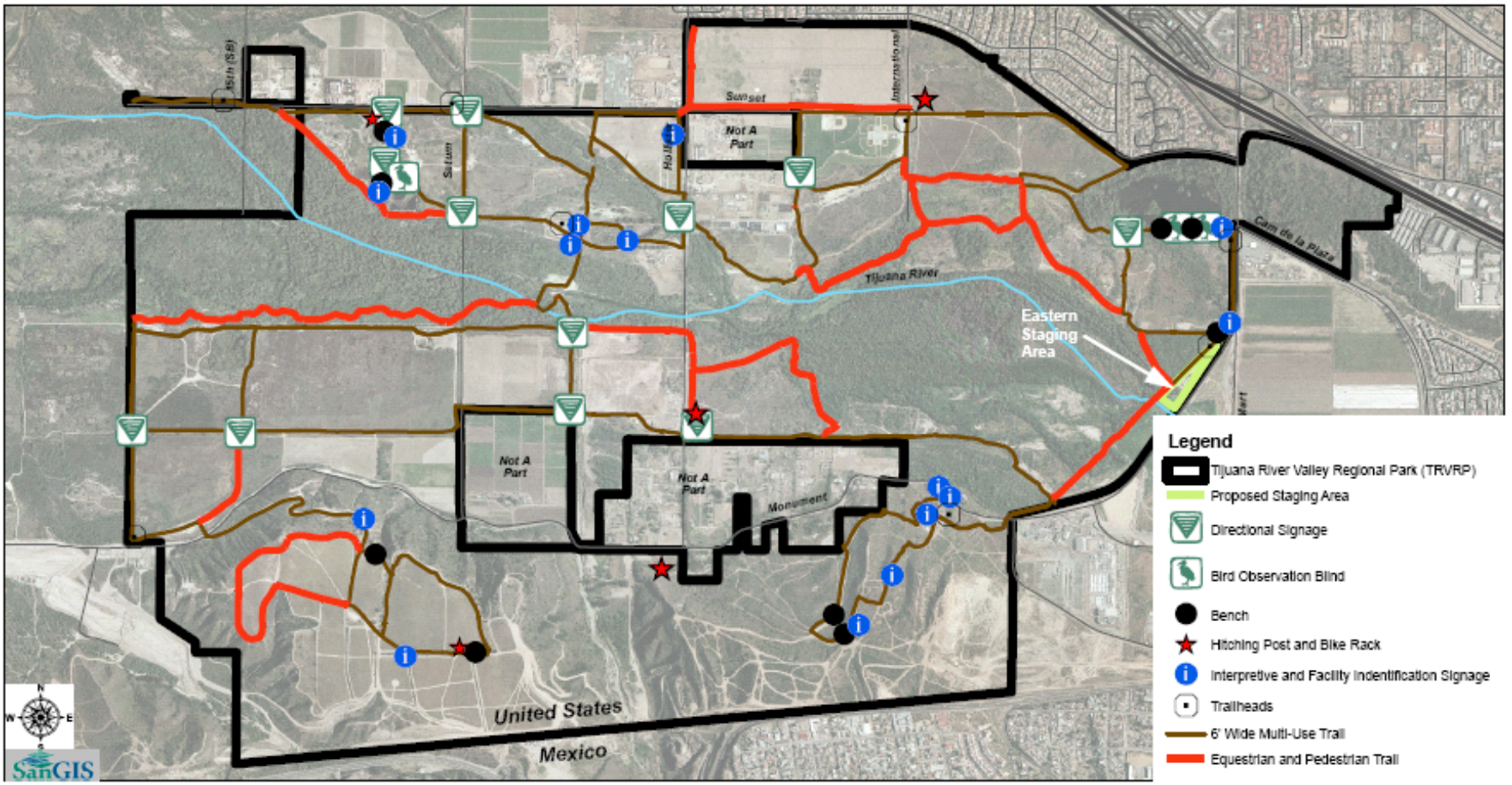
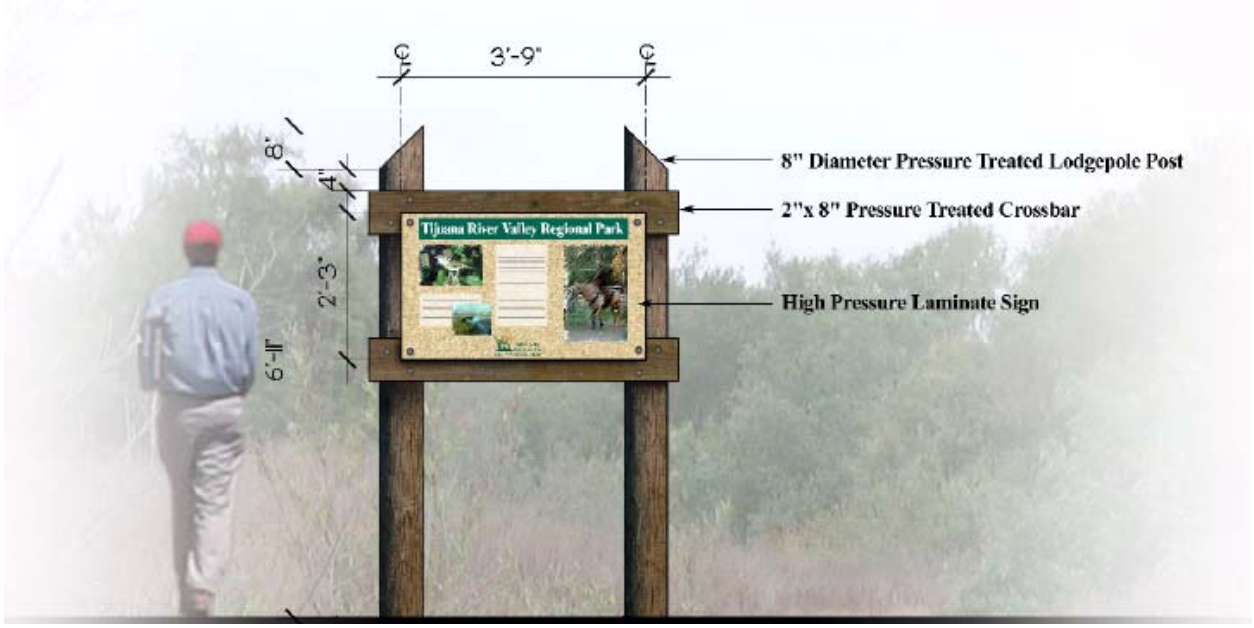
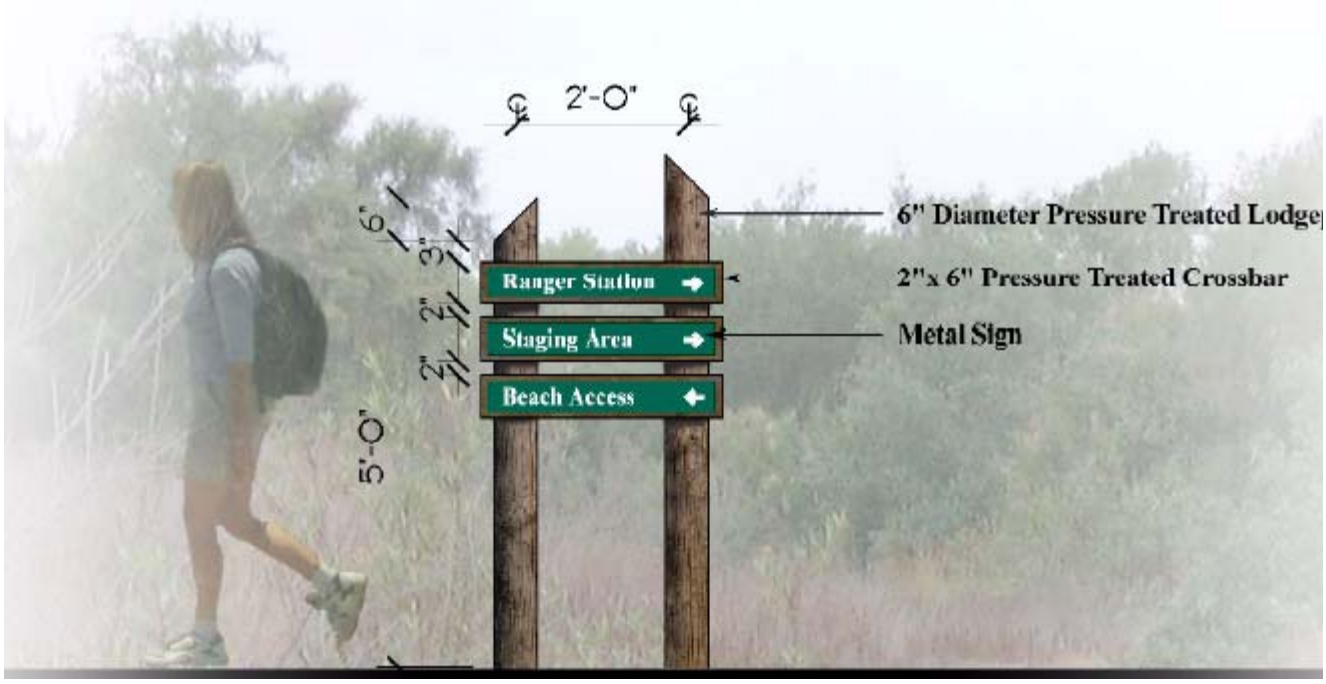


**Exhibit 16 Typical Signage**




**Interpretative Signage**




**Directional Signage**

**Exhibit 15 Trail Amenity Locations**