

# City of Carlsbad Wildlife Movement Analysis Final Report



## **Prepared by:**

City of Carlsbad  
Environmental Management Division  
1635 Faraday Avenue  
Carlsbad, CA 92008

Environmental Science Associates  
9191 Towne Centre Drive, Suite 340  
San Diego, CA 92122

Center for Natural Lands Management  
27258 Via Industria  
Temecula, CA 92590

## **Prepared for:**

California Department of Fish and Wildlife  
South Coast Region  
3883 Ruffin Rd  
San Diego, CA 92122

Local Assistance Grant Agreement No.  
P1282107

# Table of Contents

## City of Carlsbad Wildlife Movement Analysis Final Report

	<u>Page</u>
Table of Contents .....	i
Section 1 .....	1
Introduction.....	1
1.1 Purpose .....	1
1.2 Background and Definitions .....	1
1.3 Description of Study.....	4
Section 2 .....	5
Methods .....	5
2.1 Literature and Document Review .....	5
2.2 Wildlife Corridor Identification .....	6
2.2.1 East/West Corridors.....	9
2.2.2 Core to Core Corridors .....	10
2.2.3 Minor Corridors.....	11
2.3 Desktop Corridor and Pinchpoint Analysis.....	13
2.4 Pinchpoint Inventory.....	14
2.5 Pinchpoint Selection and Prioritization.....	16
2.6 Camera Locations and Installation .....	18
2.7 Camera Operation and Video Review .....	22
Section 3 .....	24
Results and Discussion .....	24
3.1 Camera Monitoring .....	24
3.2 Tracking Stations .....	44
3.3 Linkage Functionality .....	47
3.4 Adaptive Management Recommendations .....	52



3.5 Next Steps and Potential Areas of Future Study.....	53
References.....	56

## List of Figures

Figure 1 – HMP Focus Planning Area.....	2
Figure 2 – HMP Current Conditions.....	7
Figure 3 – Corridors.....	8
Figure 4 – Pinchpoints.....	15
Figure 5 – Camera Locations.....	20
Figure 6 – Species Observed at Camera Locations (North).....	25
Figure 7 – Species Observed at Camera Locations (South).....	26
Figure 8 – Transect Locations.....	46

## Appendices

- A. Desktop Corridor and Pinchpoint Analysis Screenshots
- B. Corridor Inventory Descriptions
- C. HMP Wildlife Movement Potential Pinchpoint Data Sheet
- D. Pinchpoint Photodocumentation
- E. HMP Wildlife Movement Pinchpoint Descriptions

# Section 1

## Introduction

### 1.1 Purpose

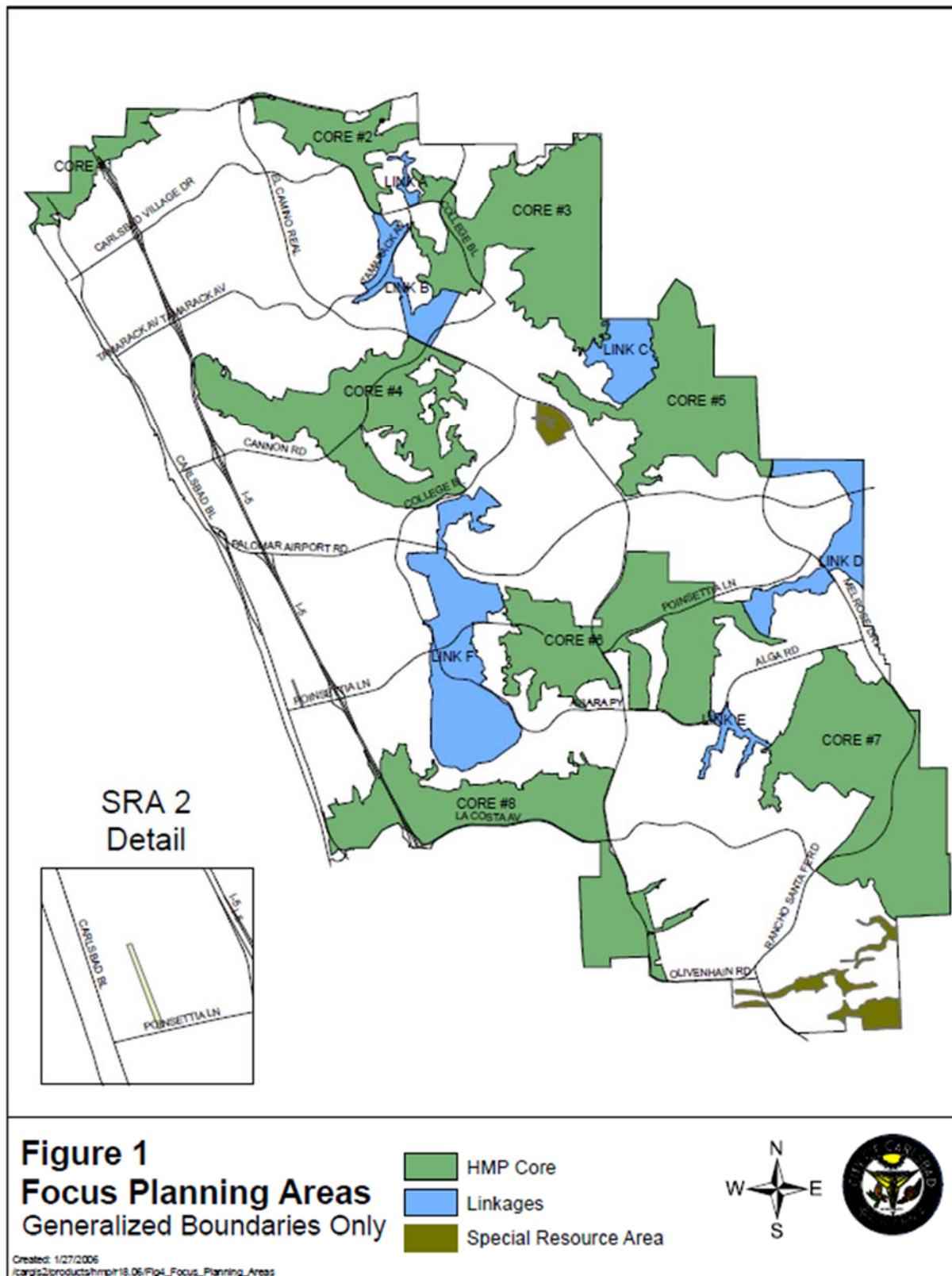
This Wildlife Movement Analysis Final Report is a summary of the methods and results of an inventory of potential wildlife movement corridors and pinchpoints within the City of Carlsbad. Also included in the report appendices are the characteristics and images of the pinchpoints that were part of the inventory. This report represents the deliverable product required in Task 3 of the Natural Community Conservation Plan (NCCP) Local Assistance Grant Agreement (No. P1282107) for the Wildlife Movement Analysis for the City of Carlsbad HMP Preserve.

### 1.2 Background and Definitions

On June 4, 2013, the California Department of Fish and Wildlife and City of Carlsbad entered into a Grant Agreement to jointly fund a study of wildlife movement within the Carlsbad's NCCP plan, known as the Habitat Management Plan (HMP). The HMP is the only approved subarea plan of the sub regional Multiple Habitat Conservation Plan (MHCP).

The MHCP was designed to “maintain connections between each of the major lagoon and estuary systems with larger blocks of inland habitats to allow movement of wildlife species” and allow for “demographic and genetic exchange by all species between preserve areas...to facilitate access by larger predators...between upland scrub and chaparral habitats and coastal habitats.” (MHCP, 2003). In order to evaluate the effectiveness of that design, the MHCP identifies several priority monitoring locations to establish where major constraints to mammal movement exist; some of these locations are within the HMP area. Tiering off of the MHCP, a key objective of the HMP is to “maintain functional wildlife corridors and habitat linkages within the city and to the region.” (HMP, 2004).

The HMP preserve system covers a total of 6,478 acres, of which 5,931 acres have been set aside for preservation. The design of the preserve system was based upon the HMP Focus Planning Area that identified eight core habitat areas connected by six linkage areas (Figure 1). As stated in the Grant Agreement, since more than 90 percent of the HMP preserve system has been assembled, it is critical to understand the status of wildlife movement throughout and beyond the HMP area. An inventory of possible wildlife movement corridors and constraints, and an initial monitoring of key locations, is necessary to provide a baseline assessment of animal movement within the city and to begin evaluating the MHCP and HMP objectives.



The restriction of wildlife movement has been demonstrated to negatively affect the health of wildlife populations by fragmenting existing habitat areas and isolating local populations (Wilcox and Murphy 1985). The maintenance of linkage areas is also vital to sustaining overall wildlife populations within a region. As local populations may naturally fluctuate based on a variety of factors, the maintenance of linkage areas allows for movements between local populations, strengthening the genetic diversity of the overall population. Habitat quality within core areas tends to be higher than within linkage areas, as linkage areas are generally more restricted and subject to increased pressures from surrounding areas (e.g., invasive species, human occupancy, roadway traffic, etc.). Thus, depending upon the species, the use of linkage areas by wildlife is typically restricted to movement between core areas. However, wildlife generally prefers habitat linkages that are of higher habitat quality and resemble the preferred habitat of typical core areas (Rosenberg et al. 1997). Elements defining the quality of a given linkage area are varied and tend to be species-specific (Rosenberg et al. 1995). Additionally, the relative restrictiveness of a given pinchpoint is generally variable by species, meaning that pinchpoints may restrict the movement of certain species, while allowing for movement of other species. Restricted linkage areas not offering reliable connectivity between core areas may still be utilized by a species for foraging.

Within highly developed areas, such as those present within much of those covered by the HMP, channelized and narrow natural drainages often function as corridors. Pinchpoints often exist where these drainages intersect roadways and are further constricted within structures such as underpasses or culverts. Sometimes the undercrossing restrictions are so severe or even non-existent such that at-grade crossing of the roadway is necessary. Although generally not designed to support wildlife movement, these structures and/or surrounding areas may sometimes be altered to improve wildlife movement. For example, shelving can be placed in culverts to allow movement of medium and small animals if the undercrossing is frequently flooded. If these culverts are large enough, fencing can be provided to help guide wildlife away from the roadway and through the undercrossing. Components common to functioning wildlife pinchpoints include native vegetation, high quality adjacent habitat, natural substrates, limited inundation, and natural lighting (Carr et al. 2003).

Terminology related to wildlife movement can vary in the literature and common usage. Terms such as core area and habitat area, or linkage and corridor, are sometimes used interchangeably, which can cause confusion. A literature review of terminology conducted by The Center for Large Landscape Conservation (Meiklejohn et al. 2009) identified the historical and most recent usage of these terms and recommends definitions that will be the basis for terminology in this report.

The MHCP and HMP preserve system designs were based upon generalized conservation planning after identifying large contiguous or semi-contiguous areas of natural vegetation and potential undeveloped connections between those natural areas. In that planning context, the large vegetation areas were named “core areas” and the connections were named “linkages.” Consistent with Meiklejohn et al., the term “linkage” in the MHCP and HMP context refers to “broader regions of connectivity important to facilitate the movement of multiple species and maintain ecological processes.” (Meiklejohn et al, 2009).

For the purposes of this report, distinct areas of potential animal movement are referred to as “corridors,” and “habitat areas” are defined as habitat adequately large to dependably maintain breeding populations of species, or to form ecologically functional areas. “Potential pinchpoints” are defined as a portion of a corridor that is constricted and may present a barrier to wildlife movement.

### 1.3 Description of Study

As summarized in the Grant Agreement, the Wildlife Movement Analysis study consists of three tasks: 1) Linkage/Pinch Point Inventory; 2) Wildlife Movement Monitoring; and, 3) Analysis and Report. This is the final report for the study.

In the early stages of study design, it was decided to focus on large and medium sized animals, most notably mule deer and bobcat. Larger animals typically necessitate larger ranges, thus needing the ability to move freely through the landscape. Both deer and bobcat are less adapted to the urban environment and provide a good indication of the functionality of a movement corridor for all other species. Therefore, the criteria used for evaluating the level of constraint posed by a pinchpoint and the suitability for inclusion in the Task 2 monitoring was based on the passage of larger and medium sized animals.

The selection of potential corridors was based upon the objectives of both the MHCP and HMP; that being wildlife movement through the city to (and beyond) the eastern and southern city boundary and within the city. Monitoring locations were chosen to maximize the potential for data to start to evaluate these objectives.



The project team consists of staff from the City of Carlsbad’s Environmental Management Division, staff from Center for Natural Lands Management (CNLM), and staff from Environmental Science Associates (ESA), who also serve as the city’s HMP Preserve Steward.

# Section 2

## Methods

### 2.1 Literature and Document Review

Prior to conducting the more detailed desktop analysis and pinchpoint inventory, a review of existing information was conducted in an effort to identify corridors and potential pinchpoints within the HMP. The HMP and MHCP were reviewed in detail, and monitoring locations, including potential pinchpoints and overall linkage areas, recommended in these documents were prioritized for further analysis. Included in this effort was a thorough review of previous reports, plans, and data associated with wildlife movement within the HMP, including:

- Connectivity Monitoring Strategic Plan for the San Diego Preserve System (SD EMPWG 2011),
- City of Carlsbad Habitat Management Plan Annual Report and Monitoring Summary, Year 7 (ESA 2012),
- College and Cannon Carlsbad High School Site Wildlife Movement Study (Dudek 2010),
- Review of Road-kill Potential on El Camino Real, along Robertson Ranch Southern Boundary (Merkel & Associates, Inc. 2007a),
- Comment Letter Re: Review of Road-Kill Potential on El Camino Real, along Robertson Ranch Southern Boundary (Merkel & Associates, Inc. 2007b),
- Report on Road-Kill at El Camino Real and Cannon Road (Preserve Calavera 2007),
- County of San Diego Department of General Services. Carlsbad Dead Animal Removal Log (County 2008), and
- Various CNLM annual reports which provide data on pinchpoints that are being monitored in Carlsbad by CNLM.

Also, several reports and plans of regional significance were reviewed in an effort to inform study methodology. These documents included:

- San Diego County Linkages Evaluation (USGS 2011),
- South Coast Missing Linkages: A Wildland Network for the South Coast Region (SC Wildlands 2008),
- Wildlife Corridor Monitoring Study for the Multiple Species Conservation Program (CBI 2003a),
- Review of Regional Habitat Monitoring Locations for the Multiple Species Conservation Program (CBI 2003b), and
- Wildlife Corridor Monitoring Study for the Multiple Species Conservation Program (CBI 2002).

Additionally, in an effort to inform the datasheet development for the pinchpoint inventory, previously created datasheets were reviewed, included from the following documents:

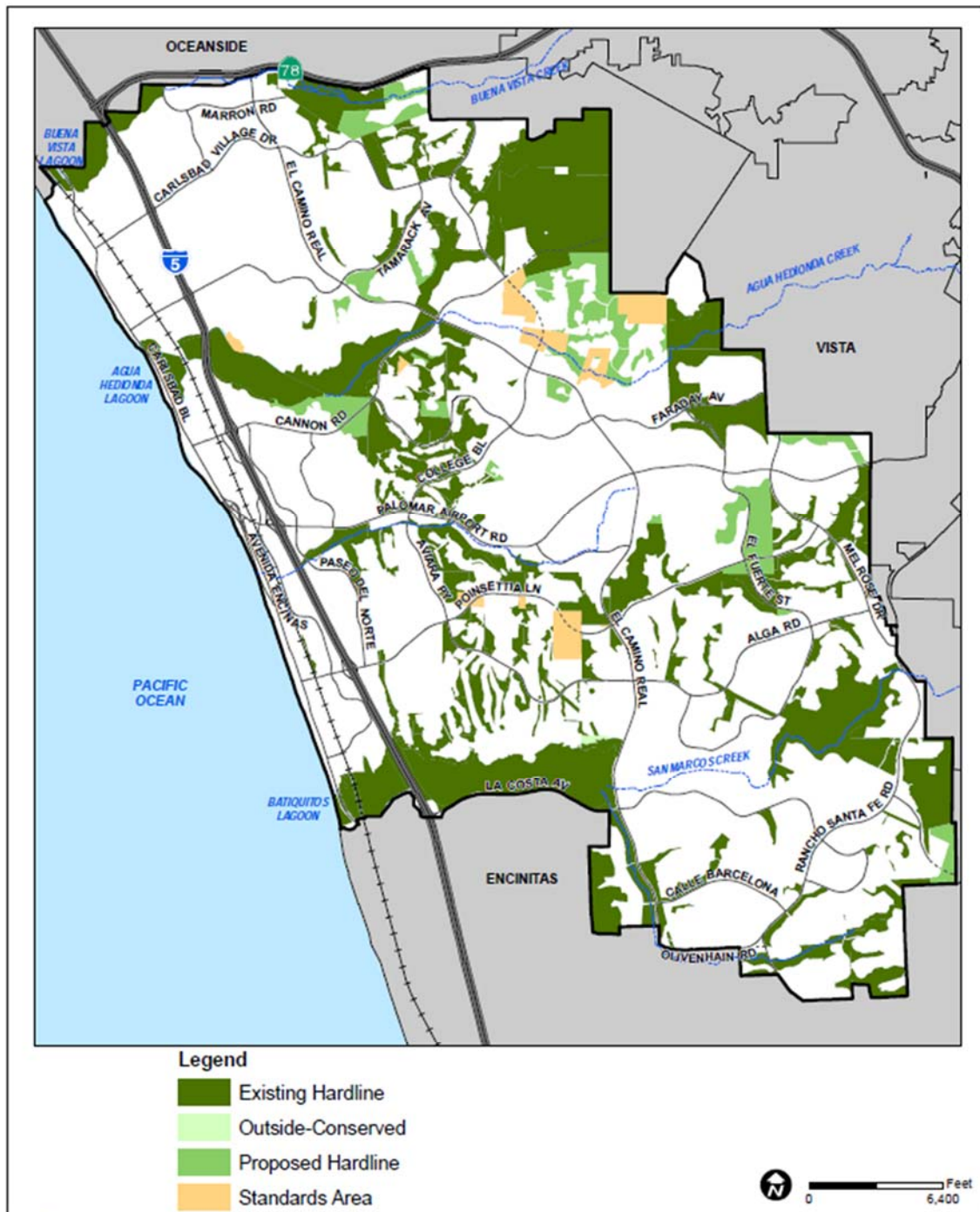
- Permeability of Existing Structures for Terrestrial Wildlife: A Passage Assessment System. Appendix B: Passage Assessment System (PAS) datasheets and user's guide. Prepared for the Washington State Department of Transportation (Kintsch, J., and P. Cramer. 2011),
- MSCP Linkage Description Log Part A. *in*: Review of Regional Habitat Linkage Monitoring Locations, prepared for the Multiple Species Conservation Program, January 2003 (CBI [Conservation Biology Institute]. 2003c), and
- Part B Crook's Measurements for Carnivore Sampling. *in*: Review of Regional Habitat Linkage Monitoring Locations, prepared for the Multiple Species Conservation Program, January 2003 (CBI [Conservation Biology Institute]. 2003d).

## 2.2 Wildlife Corridor Identification

The first step in the study involved identifying possible wildlife movement corridors through the city. The MHCP identified three regional corridors extending from each of the city's lagoons (Buena Vista, Agua Hedionda, and Batiquitos) eastward to inland upland areas within and beyond the city boundary. The HMP Focused Planning Area (FPA) shows five linkages between core areas, as shown in Figure 1. Also, as previously mentioned, some of the HMP FPA core areas are fragmented and functional connectivity relies upon narrow movement corridors between habitat patches. In addition to those wildlife corridors contained within the HMP FPA, there are riparian areas, drainages, or other open areas such as golf courses that are located outside of the HMP preserve system that possibly function as wildlife movement corridors connecting FPA cores and linkages. Figure 2 shows the current configuration and status of the HMP preserve system.

Using the city's open space Geographic Information Systems (GIS) data layer and aerial imagery, the regional, inside preserve, and outside preserve corridors were identified and ranked according to scale and potential function. As shown in Figure 3, the wildlife corridors were grouped into three categories: 1) primary - regional east-west corridors identified in the MHCP; 2) secondary - core to core corridors between major habitat areas; and, 3) minor - corridors between habitat areas and/or other corridors. A total of three primary corridors, three secondary corridors, and 11 minor corridors were identified.





### City of Carlsbad 2013 Current Conditions

Figure 2

J:\Requests\2010\Plus\Prop\Environ\Stormwater\5204475\_13

Date: 11/20/2013





#### Legend

- [1] Open Space for Preservation of Natural Resources
- [2] Open Space for Managed Production of Resources
- [3] Open Space for Outdoor Recreation
- [4] Open Space for Aesthetic/Cultural/Education

#### HMP Corridors

- East-West
- Core to Core
- Minor

#### Figure 3 Corridors

#### HMP Wildlife Movement

## 2.2.1 East/West Corridors

The East/West corridors were defined based upon the MHCP objective to maintain connectivity between the lagoons and inland areas outside of Carlsbad. They are generally characterized by larger blocks of open space habitat, with opportunity for unrestricted wildlife movement, and narrow natural drainages outside of the HMP preserve.



### **East/West 1**

East/West 1 begins at Buena Vista Lagoon and generally parallels State Route 78 (SR-78) and Buena Vista Creek through the northern portion of the city, terminating at the city boundary just west of College Boulevard. Habitat within East/West 1 tends to be dominated by wetland/riparian within Buena Vista Creek, and a mix of coastal sage scrub, non-native grassland, and ornamental communities outside of the riparian corridor.

### **East/West 2**

East/West 2 begins at Agua Hedionda Lagoon and extends eastward to the intersection of El Camino Real and Cannon Road. The corridor then splits into East/West 2a and East/West 2b, with East/West 2a continuing northeastward past Lake Calavera to the northeastern city boundary and East/West 2b continuing southeastward along Agua Hedionda Creek and La Mirada Creek to the eastern city boundary. Habitat within East/West 2 tends to be dominated by wetland/riparian west of the intersection of El Camino Real and Cannon Road, and is dominated by a mix of coastal sage scrub and coast live oak woodland within East/West 2a and East/West 2b.

### **East/West 3**

East/West 3 begins at Batiquitos Lagoon. Just west of El Camino Real, north of La Costa Avenue, East/West 3c splits off from the primary East/West 3 corridor and follows Encinitas Creek to the south and east, past La Costa Canyon High School to the eastern city boundary. After its separation from East/West 3c, East/West 3 follows San Marcos Creek eastward through the La Costa Resort & Spa property. Just west of Corte Panorama in the La Costa Oaks North residential development the corridor splits again, with East/West 3a continuing northeast along San Marcos Creek to the eastern city boundary, and East/West 3b continuing southeast past Mahr Reservoir and Denk Peak to the eastern city boundary. Habitat within the overall East/West 3 corridor tends to be dominated by wetland/riparian west of El Camino Real, and a mix of coastal sage scrub, non-native grassland, and ornamental communities east of El Camino Real.

## 2.2.2 Core to Core Corridors

The Core to Core corridors are characterized by moderate-sized blocks of open space habitat with limited opportunity for unrestricted wildlife movement. The Core to Core corridors generally run north/south and serve as movement opportunities between the more substantial East/West corridors. The habitat within the Core to Core corridors is generally not sufficient to support large-scale species movements (e.g., seasonal migrations, dispersals, etc.), and likely function primarily to support lower-order behaviors (e.g., foraging, etc.).

### **Core to Core 1**

Core to Core 1 extends from East/West 2a in the south to East/West 1 in the north. It begins just east of Rich Field Drive in the Calavera Hills Village W residential development and continues northwest through the Calavera Hills Master Plan area. Just north of the intersection of Tamarack Avenue and Carlsbad Village Drive the corridor splits. Core to Core 1a extends northward paralleling Harwich Drive and connecting with East/West 1 in the Quarry Creek Master Plan area. After the split, Core to Core 1b continues northwest through the canyon west of Hope Elementary School, through the Quarry Creek Master Plan area, and joins East/West 1 near Buena Vista Creek. Habitat within the overall Core to Core 1 corridor tends to be dominated by coastal sage scrub; however, Core to Core 1b contains medium to large patches of non-native grassland in its northern reaches and terminates within a riparian habitat.

### **Core to Core 2**

Core to Core 2 extends from East/West 2 in the north to East/West 3 in the south. Its northern terminus begins north of Cannon Road, near its intersection with Faraday Avenue, and heads southward through The Crossings at Carlsbad Municipal Golf Course and across Palomar Airport Road. Just southeast of the intersection of Palomar Airport Road and Aviara Parkway the corridor splits, with Core to Core 2 continuing towards Poinsettia Lane and Core to Core 2c heading east along Encinas Creek. Core to Core 2c leaves the creek and turns southward near the intersection of Black Rail Road and Sapphire Drive in the Marbrisa residential development. It crosses Poinsettia Lane and traverses the Aviara Master Plan area and the Aviara Golf Club before connecting with East/West 3 at Batiquitos Lagoon. Core to Core 2 splits southeast of the intersection of Poinsettia Lane and Aviara Parkway, with both Core to Core 2a and Core to Core 2b heading south through the Aviara Master Plan area and the Aviara Golf Club and joining East/West 3 west of its connection with Core to Core 2c. Habitat within the overall Core to Core 2 corridor tends to be dominated by coastal sage scrub, non-native grassland, and ornamental plant communities.

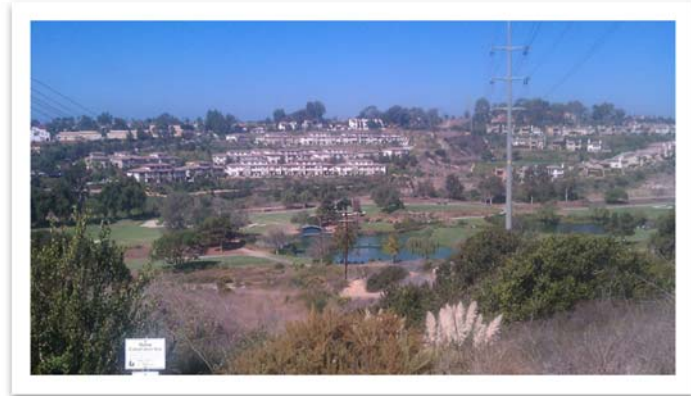
### **Core to Core 3**

Core to Core 3 stretches from East/West 2b in the north to East/West 3 in the south. It begins north of Lionshead Drive within the Carlsbad Raceway Business Park and heads southward within the SDG&E major power transmission line easement. After crossing Palomar Airport Road, the corridor traverses the Rancho Carrillo Master Plan area and other HOA lands to reach Alicante Road. At Alicante Road, the corridor enters the La Costa Resort and Spa golf course and

heads south, crossing Poinsettia Lane, and connecting with East/West 3. Habitat within the overall Core to Core 3 corridor tends to be dominated by coastal sage scrub, non-native grassland, and ornamental plant communities.

### 2.2.3 Minor Corridors

The Minor corridors are characterized by smaller blocks of open space habitat with limited opportunity for wildlife movement. The Minor corridors generally serve as movement corridors between the larger Core to Core and East/West corridors.



#### Minor 1

Minor 1 extends from Core to Core 1 in the north to East/West 2a in the south. It begins in the canyon west of Hope Elementary School, east and north of Carlsbad Village Drive. It crosses Carlsbad Village Drive and splits just north of the Calavera Hills RV Storage Facility, with Minor 1a continuing south towards the drainage paralleling Tamarack Avenue to Pontiac Drive, and then crossing Tamarack Drive to meet East/West 2a within the Robertson Ranch Master Plan area. After splitting, Minor 1b crosses under Tamarack Avenue, passes south of the Calavera Hills Community Park, and travels east of Edinburgh Drive in the Colony at Calavera Hills residential development before it intersects East/West 2a north of Four Peaks Road in the Robertson Ranch residential development. Habitat within the overall Minor 1 corridor tends to be dominated by non-native vegetation, including eucalyptus, and coastal sage scrub.

#### Minor 2

Minor 2 connects East/West 2b in the south with East/West 2a and HMP preserve in the north. It begins just east of the intersection of El Camino Real and Cannon Road and follows Calavera Creek to Sage Creek High School. South of the intersection of College Boulevard and Cannon Road, it splits with Minor 2a continuing northward along Calavera Creek and connecting with East/West 2a just north of Sage Creek High School. After splitting, Minor 2b continues south of Sage Creek High School and terminates in the adjacent open space. Habitat within the overall Minor 2 corridor tends to be dominated by coastal sage scrub and ornamental plant communities.

#### Minor 3

Minor 3 extends from Minor 4 in the south to the Calavera area open space in the north. Starting within Los Monos Canyon and heading north and east through agricultural fields, Minor 3 parallels the eastern city boundary and residential development in the City of Oceanside. Habitat within the overall Minor 3 corridor tends to be dominated by coastal sage scrub and disturbed plant communities.

#### **Minor 4**

Minor 4 extends from East/West 2b in the southwest to the eastern city boundary. It begins at the confluence of Agua Hedionda Creek and La Mirada Creek and follows Agua Hedionda Creek generally northeast. Habitat within the overall Minor 3 corridor tends to be dominated by coastal sage scrub and coast live oak woodland plant communities.

#### **Minor 5**

Minor 5 branches off of East/West 2b just west of the intersection of El Camino Real and Cannon Road, and continues generally south through Kelly Ranch preserve before connecting with Core to Core 2 within The Crossings Golf Course. Habitat within the overall Minor 5 corridor tends to be dominated by coastal sage scrub and riparian plant communities.

#### **Minor 6**

Minor 6 is composed of Minor 6a and Minor 6b, connected by Core to Core 2c. Minor 6a originates at the eastern edge of Interstate 5 at Encinas Creek and generally follows the creek eastward before connecting with Core to Core 2 east of the intersection of Palomar Airport Road and Aviara Parkway. Minor 6b breaks off of Core to Core 2c just north of the intersection of Poinsettia Lane and Fisherman Drive and traverses private open space and conserved lands before connecting with the Minor 7 corridor just east of the intersection of Poinsettia Lane and Estrella de Mar Road. Habitat within the overall Minor 6 corridor tends to be dominated by coastal sage scrub and riparian scrub plant communities.

#### **Minor 7**

Minor 7 extends between East/West 2b in the north and Core to Core 3 in the south. It begins at La Mirada Creek and travels southward across Faraday Avenue and Palomar Airport Road. At that point it enters and travels through the ornamental landscaping of an industrial park before emerging into native habitat south of Town Garden Lane. It continues southward, paralleling Alicante Road west of the Alga Norte Community Park, crosses La Costa Avenue, and enters the La Costa Resort and Spa golf course to join with Core to Core 3. An alternate route could exist east of Alicante Road near Alga Norte Community Park, which would allow Minor 7 to join Core to Core 3 within natural open space. Those areas with habitat within the overall Minor 7 corridor tend to be dominated by coastal sage scrub and coast live oak woodland plant communities.

#### **Minor 8**

Minor 8 connects Core to Core 3 in the northwest with East/West 3 in the southeast. It starts at the La Costa Resort and Spa golf course west of Goldstone Road and follows the SDG&E major power transmission line easement southeastward between the residential neighborhoods in La Costa, crossing El Fuerte Street and joining Core to Core 3 at San Marcos Creek. Habitat within



the overall Minor 8 corridor tends to be dominated by coastal sage scrub and disturbed plant communities.

### **Minor 9**

Minor 9 splits off of East/West 3b just east of Rancho Santa Fe Road and heads generally north of Mahr Reservoir to the eastern city boundary. Habitat within the Minor 9 corridor tends to be dominated by coastal sage scrub and disturbed plant communities.

### **Minor 10**

Minor 10 breaks off of East/West 3c just southwest of the intersection of El Camino Real and La Costa Avenue and heads generally south, between the La Costa Glen Carlsbad Retirement Community and the western city boundary, and continues to the southern city boundary. Habitat within the overall Minor 10 corridor tends to be dominated by coastal sage scrub and riparian scrub plant communities.

### **Minor 11**

Minor 11 extends between Minor 10 in the west to East/West 3c in the east. Its western terminus is just west of Calle Barcelona and it continues south of The Forum shopping center to meet East/West 3c just west of El Camino Real. Habitat within the Minor 11 corridor tends to be dominated by willow woodland.

## **2.3 Desktop Corridor and Pinchpoint Analysis**

Once the possible wildlife movement corridors were defined and mapped, the next step in the study identified potential constraints to movement using an in-office assessment. This in-office assessment followed the methodology used by USGS in studying linkage restrictions within the MSCP area (Rochester et al., 2012). Potential movement corridors were analyzed using the following tools:

- City of Carlsbad Open Space GIS data layer (including conserved natural open space, as well as recreational open space),
- City of Carlsbad Culvert GIS data layer,
- ESRI ArcGIS ArcMap imagery, and
- Google imagery (including Google Earth, Google Maps, and street view images).

Each potential pinch point or barrier to movement along a given corridor was given a unique identification number and a point was input into a GIS shapefile. Characteristic details (e.g., fencing, surrounding vegetation, culvert type, adjacent roadways, etc.) of each location were noted. Locations identified during the initial pinchpoint selection process that were observed to not provide sufficient wildlife connectivity between areas of potentially suitable habitat were rejected from further analysis. Several representative screenshots of aerial maps for each location were taken and included as part of the documentation for each corridor and potential

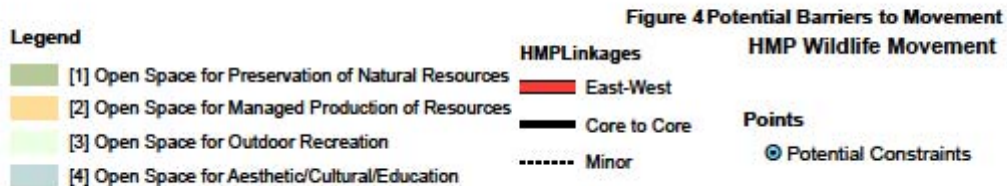
pinchpoint. The purpose of the screenshots was to provide an overview of the area and to aid the field-based pinchpoint inventory. A copy of the desktop analysis summary is provided in Appendix A.

## 2.4 Pinchpoint Inventory

Pinchpoint inventory methodology was established in coordination with U.S. Geological Survey (USGS) personnel. The project team met with USGS personnel to verify that the pinchpoint inventory methodology was consistent with previous USGS efforts. Additionally, the datasheets created for the pinchpoint inventory were created in coordination with and reviewed by USGS staff. The corridors and potential pinchpoints identified during the literature review and desktop analysis were surveyed on foot by the project team. General characteristics of each location were

recorded on study-specific datasheets, as well as using mobile application software. A copy of the datasheet can found in Appendix C. Data collected included the physical specifics (e.g., type of crossing, structure material, etc.) and vegetation specifics (dominant habitat types, percent cover, etc.). All wildlife, or sign thereof, was identified and recorded. Unidentifiable tracks or scat were omitted from further analysis. Additionally, a thorough qualitative analysis of potential threats to wildlife movement at each location was conducted. The suitability of each potential pinchpoint for follow-up study (e.g., motion-activated camera study, roadkill study, etc.) was also assessed. Images were taken at each visited pinchpoint and representative images are contained in Appendix D. A complete file of all images taken at the visited sites is available and will be provided upon request. The data collected was synthesized into pertinent information, transferred into an MS Access database, and incorporated into a report, entitled, “HMP Wildlife Movement Pinchpoint Descriptions” (Appendix D).







## 2.5 Pinchpoint Selection and Prioritization

The literature and document review and desktop corridor and pinchpoint analysis served as the basis for the identification of corridors and selection of potential pinchpoints to be surveyed. Based upon this analysis, a total of 104 potential pinchpoints were identified (Figure 4). Three minor corridors were found to have no pinchpoints and were therefore not included in the field reconnaissance. The 104 pinchpoints were further studied and 18 were eliminated due to complete impassability or inability to access due to property ownership. A complete description of each pinchpoint, including location, type, and surrounding habitat, is contained in Appendix D.



Camera locations were initially prioritized according to the MHCP based East-West corridors, creeks (such as Agua Hedionda, Calavera, Encinas, and Encinitas) and suitability for camera monitoring as determined in Phase I of the study. Due to heavy human presence in most of EW1, that corridor was not selected for cameras. In addition to the undercrossings, camera monitoring was also established along an animal trail within the Carlsbad Raceway preserve and an SDG&E access road south of Alga Road to see what species may be using these trails. A camera was also placed in an undercrossing in the area burned by the Poinsettia Fire in May of 2014 to monitor animal movement within the burn area. Table 1 provides a brief description of the selected pinchpoints and Appendix E contains detailed information for all pinchpoints identified in the initial inventory.

**TABLE 1 – Descriptions of Pinchpoints Used for Camera Study**

Pinchpoint ID	Type	Height (m)	Width (m)	Length (m)	Openness Ratio	Surrounding Vegetation Type
CC1-3	Wildlife trail	N/A	N/A	N/A	N/A	Shrubs
CC3-1	Pipe	1.5	1.5	85.0	0.03	Trees
CC3-6a	Box culvert	2.1	2.1	33.8	0.13	Short grasses, forbs, shrubs
CC3-6b	Animal trail	N/A	N/A	N/A		Short grasses, forbs, shrubs

Pinchpoint ID	Type	Height (m)	Width (m)	Length (m)	Openness Ratio	Surrounding Vegetation Type
EW2-3	Arch culvert	1.9	3.7	49.3	0.14	Short grasses, forbs
EW2-4	Bridge	Variable	38.3	30.2		Trees
EW2-5	Bridge	Variable	20.1	32.3		Short grasses, forbs, trees
EW2-6	Bridge	4.0	25.8	12.0	8.6	Short grasses, forbs
EW2-9	Arch culvert	3.3	6.5	35.5	0.60	Shrubs
EW3-6a	Arch culvert	12.8	17.4	299.9	0.74	Short grasses, forbs
EW3-6b	Wildlife trail	N/A	N/A	N/A	N/A	Shrubs
EW3-7	Box culvert	2	6	17.0	0.71	Trees
EW3-10a	Bridge	1.5	33.0	44.0	1.13	Trees
EW3-13	Box culvert	1.6	9.2	29.0	0.54	Short grasses, forbs
M2-1	Box culvert	2.1	3.4	179.9	0.04	Shrubs, concrete
M5-1	Box culvert	0.9	1.8	32.3	0.05	Trees, shrubs
M6-1n&s	Utility access road	8.0	4.0	41.0	0.78	Trees
M6-3	Box culvert	1.2	3.7	30.5	.15	Trees, shrubs
M10-1	Arch culvert	2.8	8.4	38	0.62	Trees, shrubs
M11-1b	Arch culvert	2.9	5.8	45	0.37	Trees, shrubs
PF	Box culvert	1.8	3.0	21.1	0.26	Short grasses, forbs

## 2.6 Camera Locations and Installation

A total of 27 cameras locations were used at various times over the study period (January 2014 – January 2015) as shown in Figure 5. Each camera was given an identification number to correspond to the associated pinchpoint. Table 2 below lists the camera identification number, operator, dates in service, and mounting location at the pinchpoint. Photographs of each pinchpoint are contained in Appendix D for reference.

**TABLE 2 - CAMERA MONITORING DATES AND LOCATIONS**

Camera ID	Operator	Dates in Service	Mounting Location
Camera ID	Operator	Dates in Service	Mounting Location
CC1-3	CNLM/SDTT	Aug 2014 - Jan 2015	Mounted in the middle of the wildlife trail in Village K.
CC3-1	City	Jul 2014 to present	Headwall at entrance to culvert
CC3-6a	City	Jan – Mar 2014 (stolen)	Inside wall of culvert
CC3-6b	City	Jan – Oct 2014	T-post near trail
EW2-3	CNLM	Oct 9 - Oct 19 2012	Mounted in middle of tunnel on ground.
EW2-4a	City	Jan – Oct 2014 (stolen)	Support post under bridge
EW2-4b	City	Jan – Oct 2014 (stolen)	Support post under bridge
EW2-5a	City	Feb – May 2014 (moved to EW2-6)	Side wall under bridge
EW2-5b	City	Jan 2014 – present	Support post under bridge
EW2-6	City	Jul 2014 – present	Tree next to creek channel
EW2-9	CNLM	Nov 2010 – Feb 2014	Mounted at north entrance on post.
EW3-6a	CNLM	Nov 2012 to Apr 2013; Oct 2013 to Mar 2014.	Two cameras mounted in sky light in middle of tunnel

Camera ID	Operator	Dates in Service	Mounting Location
EW3-6b	CNLM	Oct 2010- April 2011; Sept 2011- June 2014; Dec 2014-Jan 2015	Camera mounted on pole about 23m from EW3-6a tunnel opening on wildlife trail
EW3-7	City	Jan – Mar 2014 (stolen)	Side wall inside culvert
EW3-10a	City	Feb – Oct 2014	Support post under bridge
EW3-13a	City	May 2014 – present	Side wall inside culvert – moved to headwall at entrance
EW3-13b	City	Jan – Jul 2014	Headwall at culvert entrance
M2-1	City	Jan – Oct 2014 (stolen)	Side wall inside culvert
M5-1	City	Jul 2014 – present	Side wall inside culvert
M6-1N&S	CNLM	Oct 2010 – Apr 2014	Mounted on pole in middle of preserve half way down the utility access road.
M6-3	City	Jul 2014 – present	Headwall at culvert entrance
M10-1	CNLM	Oct 2013 – Jan 2014	First mount location was in sky light, then moved to pole on north side of tunnel.
M11-1	CNLM	Oct 2013 – present	Mounted at east side of tunnel on pole.

The monitoring equipment used by the city were Bushnell Trophy Cam 8MP N/V trail cameras (Mfr# 119436C), Bushnell Security Cases for Trophy Cam (Mfr# 119653C), SanDisk Extreme SDHC UHS-1 (80MB/S) 32GB memory cards, and Energizer L91 AA Ultimate Lithium 1.5 volt batteries. No external power sources were used in the study. CNLM used Cuddeback Attack IR (Mfr#1156) and Capture IR (Mfr#1132) with various SD memory cards (brands and sizes), and primarily Duracell D batteries.



SOURCE: CNDDB, USFWS, CNLM (Recent location 2012-2014)

Carlsbad Preserve Annual Report . 211696  
**Figure 5**  
 City of Carlsbad  
 Wildlife Linkages and Camera Locations





Based upon the conditions at the pinchpoint, necessary view angles, and mounting opportunities, different mounting techniques were used. Some cameras were mounted on a wooden board secured to a T-post, such as the trail camera at CC3-6b. Others were mounted on a tree near the pinchpoint using metal straps through holes in the camera case, such as EW2-6 and M8-1. Most of the city cameras were located at culverts or under bridges, allowing an angled wooden block to be glued to the concrete using Loctite Heavy Duty epoxy; the camera cases were then mounted onto the wooden block with screws. In cases where the wooden block was glued to a round support post under a bridge, a cable was strung through the camera case to provide further protection from theft. All of the camera security cases were labelled with "Wildlife Study." Based upon the audio recorded during human interaction with the cameras, this technique deterred vandalism and theft. M2-1, although it was eventually stolen, recorded videos almost very frequently of students

from the nearby high school; however it was operational for ten months despite this heavy traffic and graffiti being painted around it.

Many factors were considered when placing the cameras. Some of the considerations were due to the limited number of cameras available relative to the number of pinchpoints to be monitored, as well as the purpose of the study to gain an overall perspective of animal presence at the pinchpoints. These factors included: the ability to capture activity at the entrances to a multi-chamber; potential sources of obstructions and/or false triggers such as vegetation, moving shadows, and cars or pedestrians in the background of the field of view; angling the camera along the likely travel path (rather than perpendicular) so as to maximize observations after triggering; and the balance between mounting the camera high enough to minimize impacts from floodwaters in the culverts versus mounting it low enough to maximize triggering by an animal.



## 2.7 Camera Operation and Video Review

CNLM cameras captured animal movement imagery using still photography. All of their cameras were already in place and operational prior to the study period therefore the cameras and methodology were not changed. All of the monitoring conducted with city cameras used video. Video was chosen over still imagery for several reasons. While video monitoring consumes more data storage and battery power, the interval of camera maintenance was intended to be frequent enough to empty the memory card and/or replace batteries if needed. Video provides many benefits by facilitating animal identification, studying animal behaviour, and providing audio information. Due to the slight delay between trigger and image capture, a still image may only show indistinguishable features or fur whereas the added information in a video increases the opportunity for accurate species identification. Video allows animal identification when multiple individuals are passing rapidly by the camera. A fast moving animal can easily trigger the camera and move out of frame before recording begins; however, a video can capture other individuals following the first animal and allow identification. Video also allows the capture of animal behaviour, which can help infer information on conditions and pinchpoint permeability. Lastly, the audio record accompanying video recording can be useful when evaluating if a video record was a false trigger or perhaps an animal foraging or vocalizing outside of the frame.

Due to concerns over data storage and power, the cameras were initially set to a video length of 10 seconds with a video period (or minimum delay before next trigger) of 10 seconds. After finding that storage and power were not a constraint, the camera settings were changed to 15 second video length and 5 second delay to gather more behavioural information. Other camera settings were 640x480 video size and 8MP resolution.

After the first installation, the cameras were checked within two to three days to ensure proper operation. The maintenance interval then expanded to weekly, monthly, and longer intervals later in the study period. At each visit, the video files were downloaded onto a laptop computer and random videos were viewed to confirm camera operations. The last video recorded was also viewed to confirm that it was the date of the current visit and the camera remained operational. In some cases, the last video recorded was not on the visit date due to a water event that flooded the camera, which occurred at EW3-10a and EW 2-5, or false triggers that filled the storage card and drained the battery power, which occurred at CC3-6b and M8-1 when the camera gathered over 5,000 15-second videos.



At each visit, the cameras and cases were cleaned of debris and spider webs, the camera and detector lenses were wiped, and the mounting was checked for integrity. The area surrounding the camera was inspected to note any significantly changed circumstances and need for remedial actions, most notably for human activity. During the study period, two cameras were vandalized with black spray paint over the camera lens and needed to be cleaned. Four cameras were stolen and three cameras suffered water damage and needed

replacement. Fortunately, for one of the water damaged cameras, the data stored in the storage card was retrievable.

The videos were reviewed for animal and human observations by city staff and the files named using the following protocol: {camera ID}.{date}.{animal type}. The files were stored in folders by camera ID and archived onto CDs for future study if needed. Some animals remained in the vicinity of the camera for an extended period of time, causing multiple video captures.

Therefore, it was decided to classify an animal “event” as videos triggered at least 30 minutes apart. The number of events by month for each camera were tabulated and are displayed in the bar graphs in Section 3.1. Also captured and named were files containing videos of humans. The frequency, timing, and number of events for humans was not analyzed for this study. All video has been archived to allow for future analysis.



There were many lessons learned during the camera monitoring phase of the study. Most notably was the need to check the cameras frequently and download data, at a minimum interval of one month. The urban nature of the preserve, and proximity of cameras to public rights-of-way expose the cameras to a higher risk of vandalism and theft; however this proximity makes frequent visits less time consuming than cameras in more remote locations. To maximize data capture, it is especially important to check the camera and download data before rain events and school vacations.



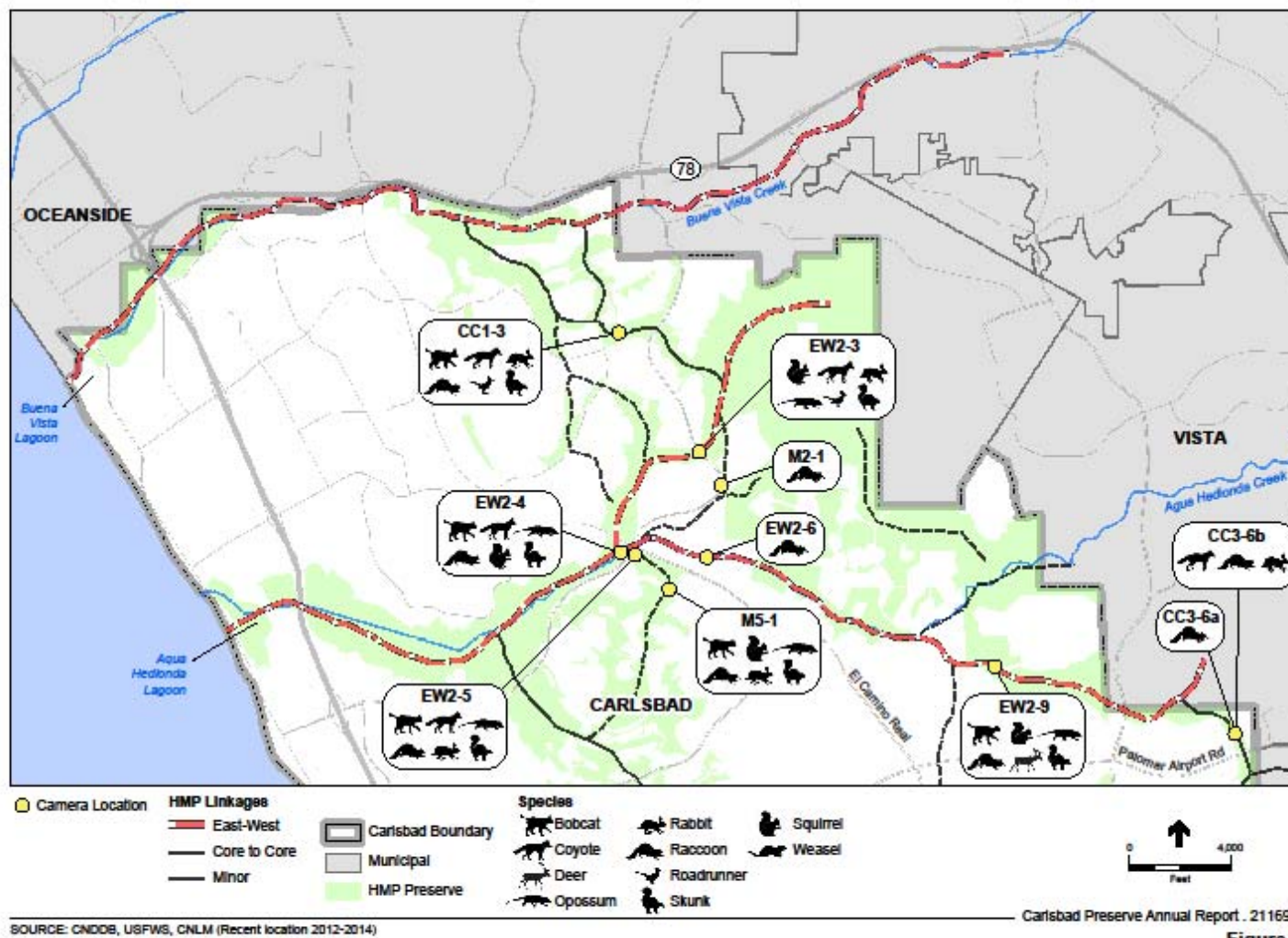


# Section 3

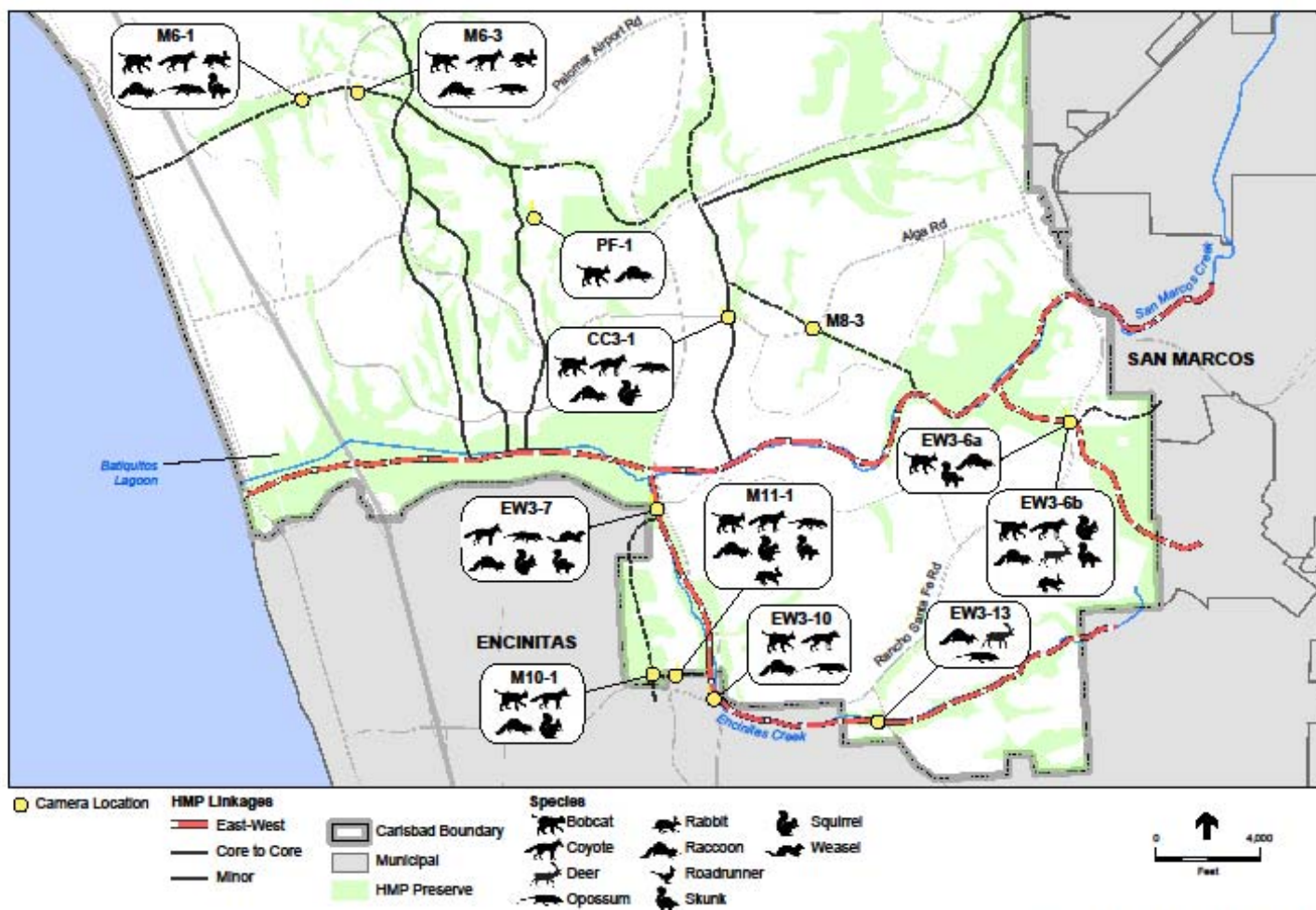
## Results and Discussion

### 3.1 Camera Monitoring

The results of the camera monitoring are detailed below. This report includes data from CNLM cameras prior to the beginning of the grant associated study period in January 2014. Figures 6 and 7 provide a summary of the species observed at each camera monitoring location and the graphs show the species observed by month for each camera.



**Figure 6**  
Species Observed at Camera Locations (North)

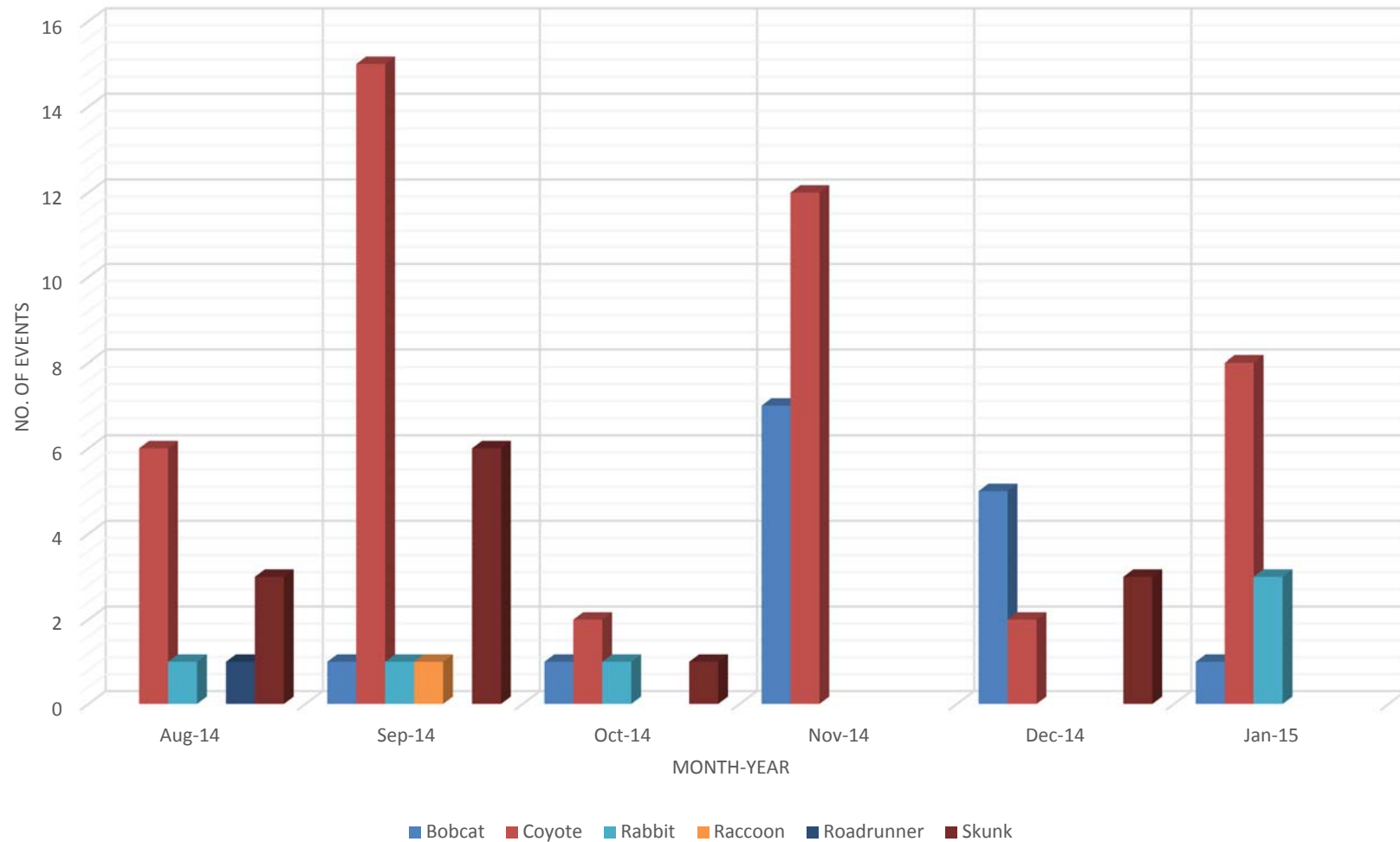


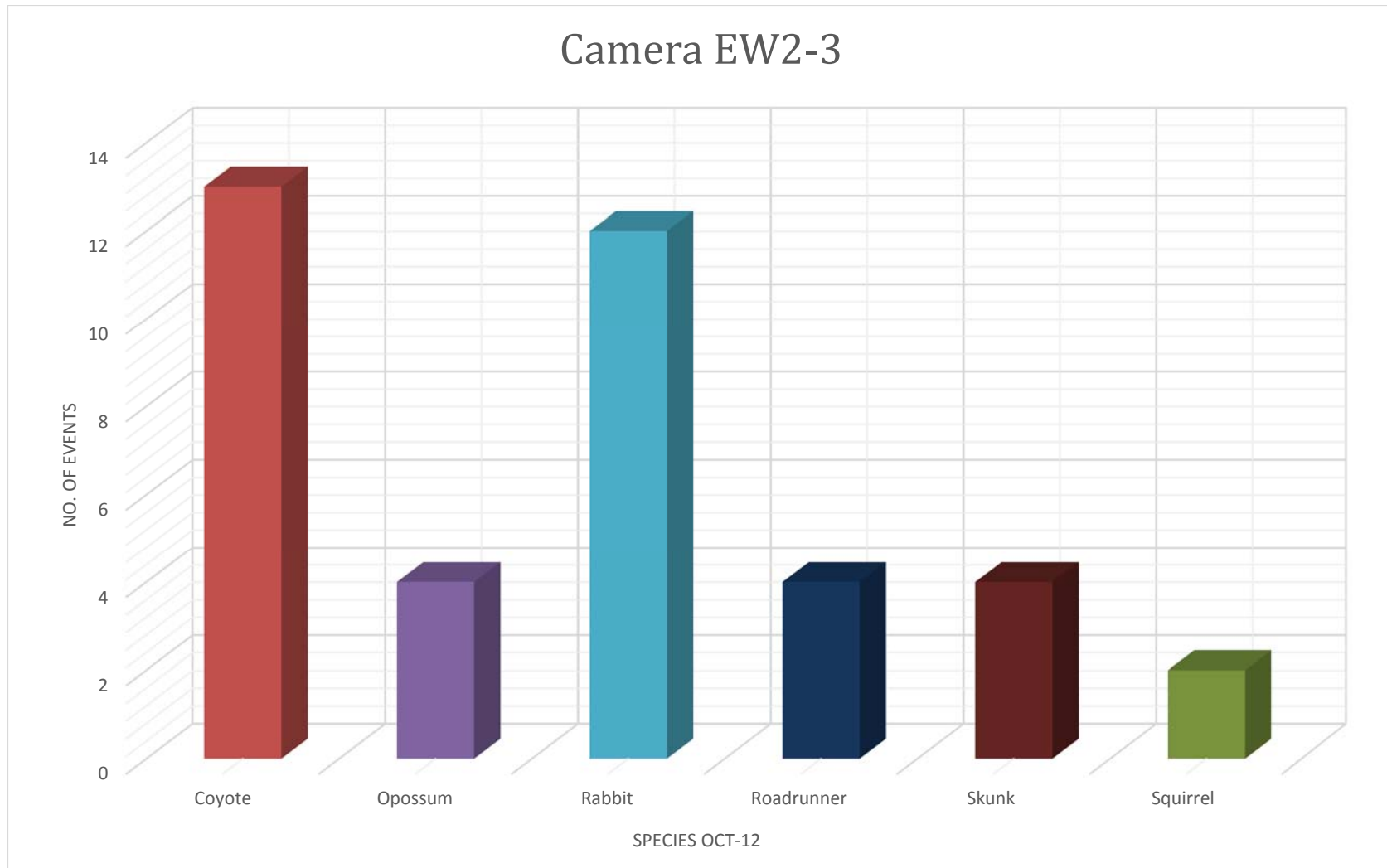
SOURCE: CNDDB, USFWS, CNLM (Recent location 2012-2014)

Carlsbad Preserve Annual Report - 211696

**Figure 7**  
Species Observed at Camera Locations (South)

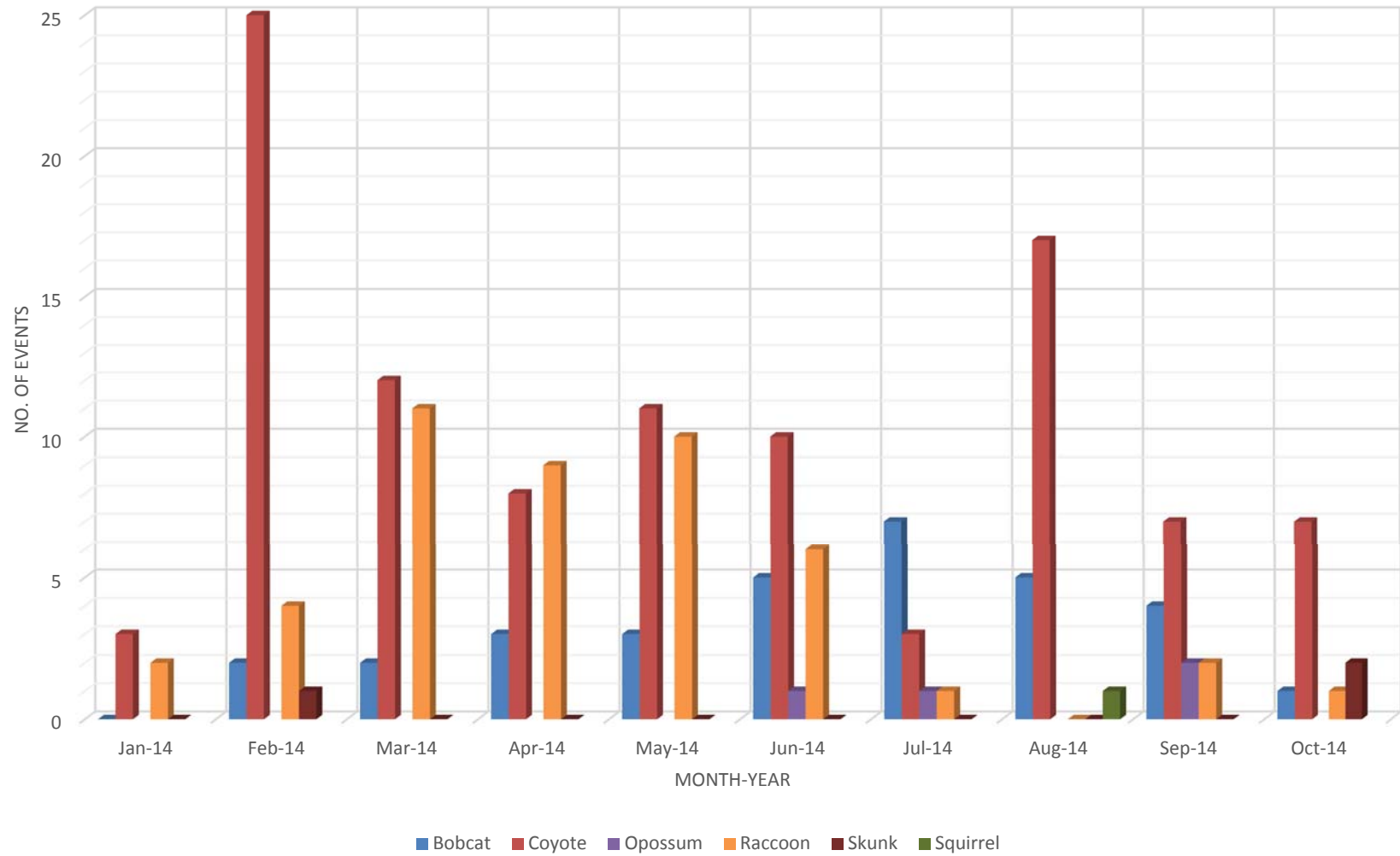
## Camera CC1-3



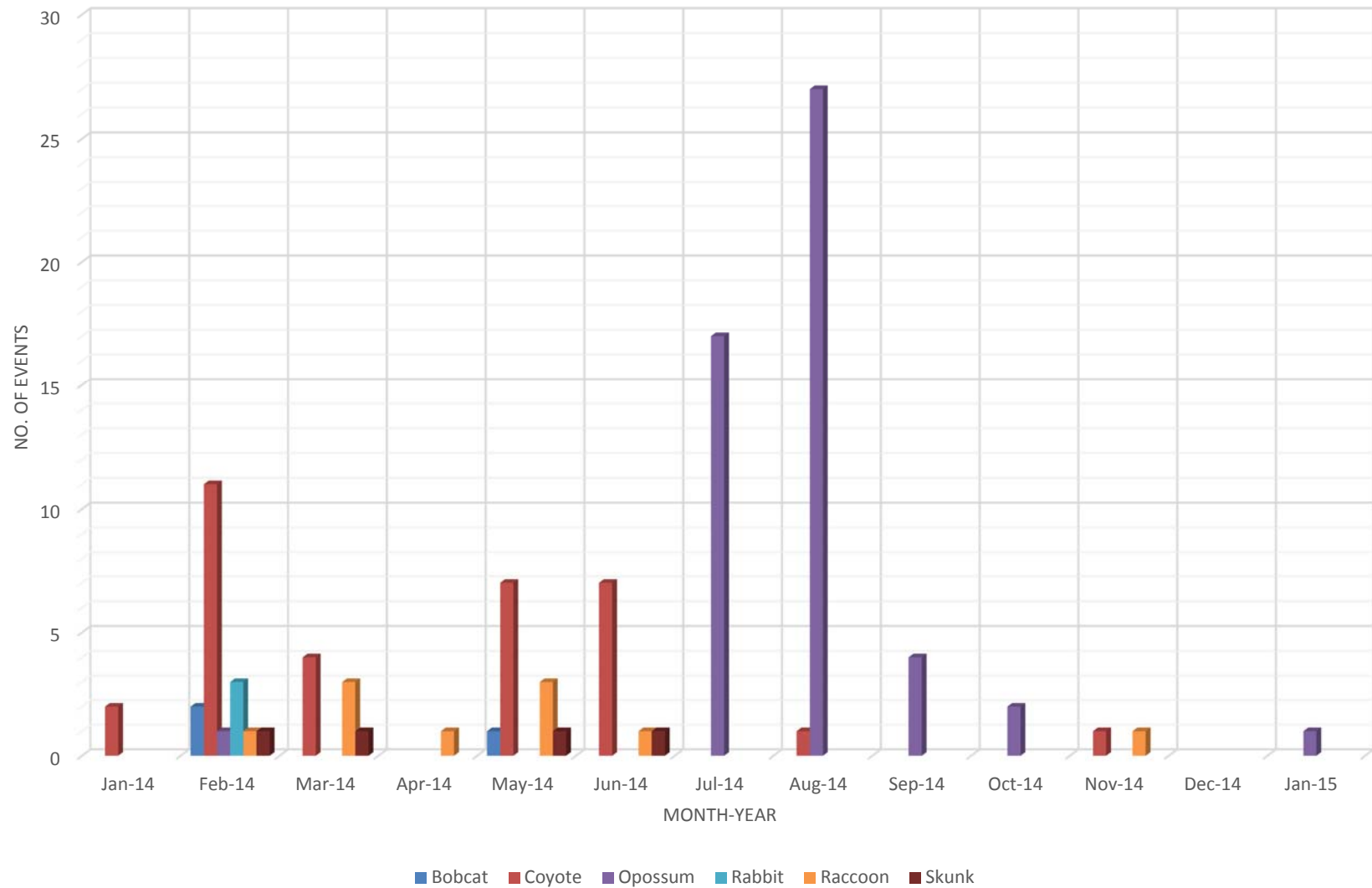


(Note: Camera was only deployed for 10 days as this tunnel is frequented by people and the camera could have easily been stolen. Data retrieved in this short time frame were excellent, at which time it was determined that further study was not needed.)

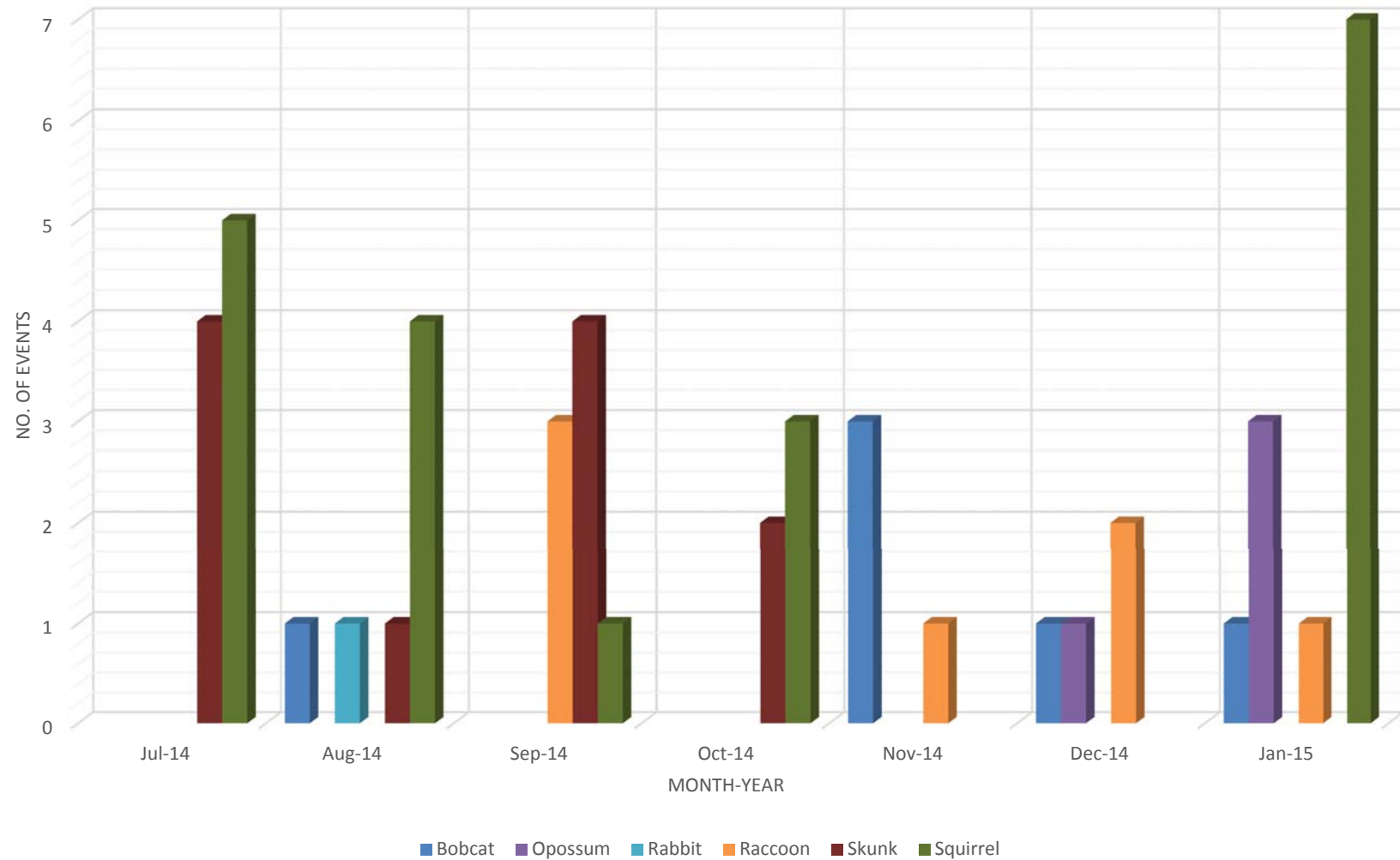
## Cameras EW2-4a & EW2-4b



## Cameras EW2-5a & EW2-5b

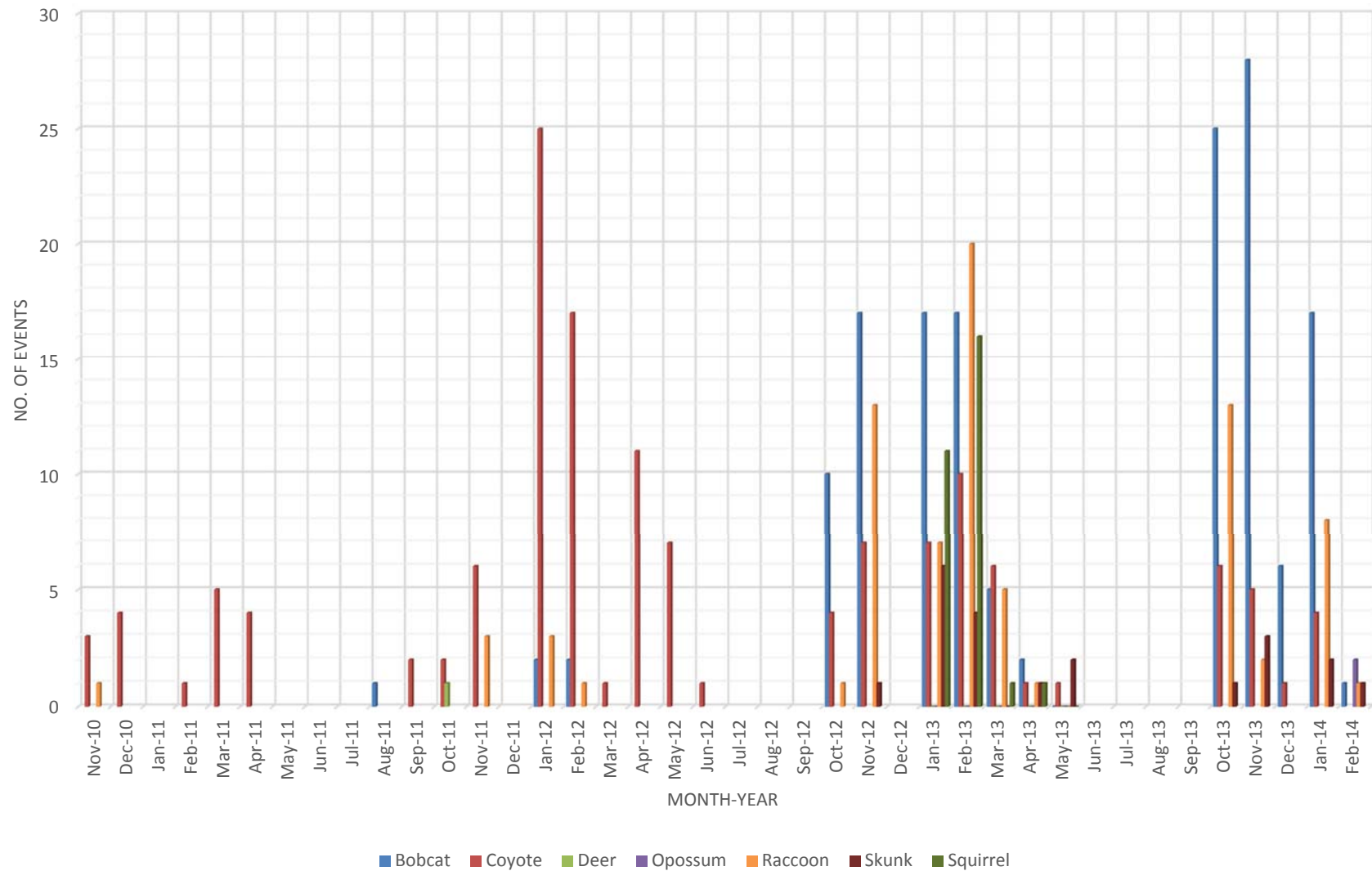


## Camera M5-1

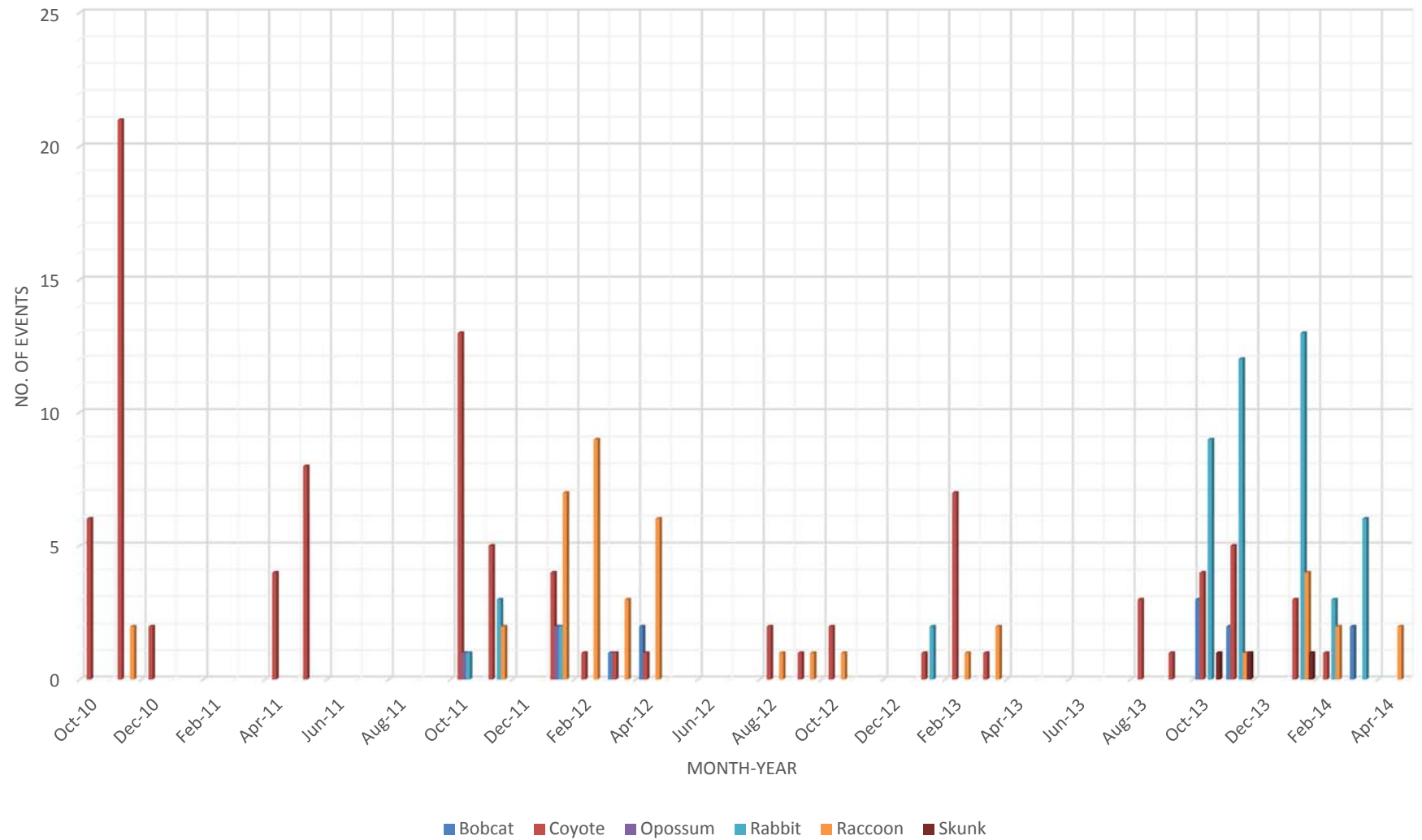




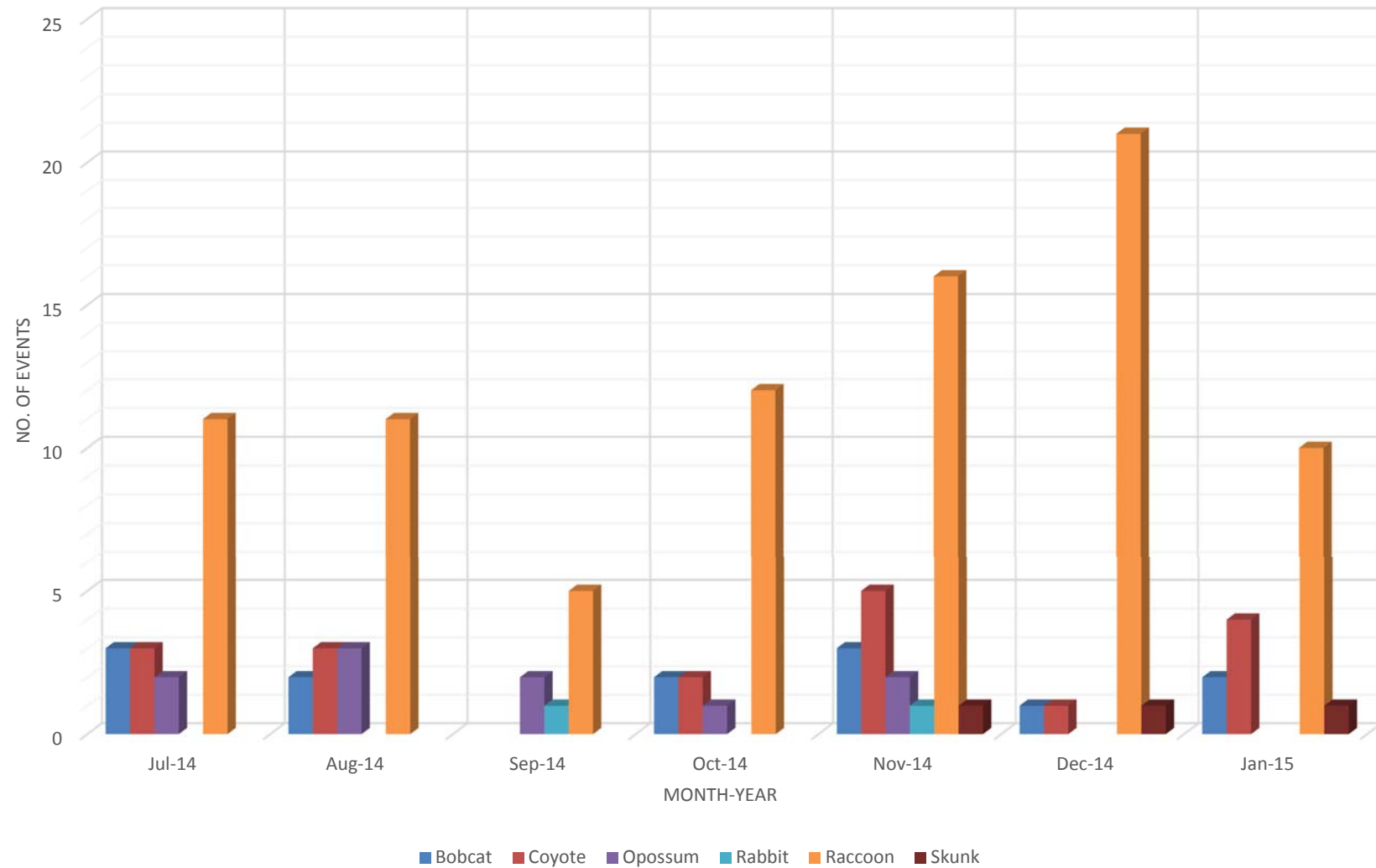
## Cameras EW2-9a & EW2-9b



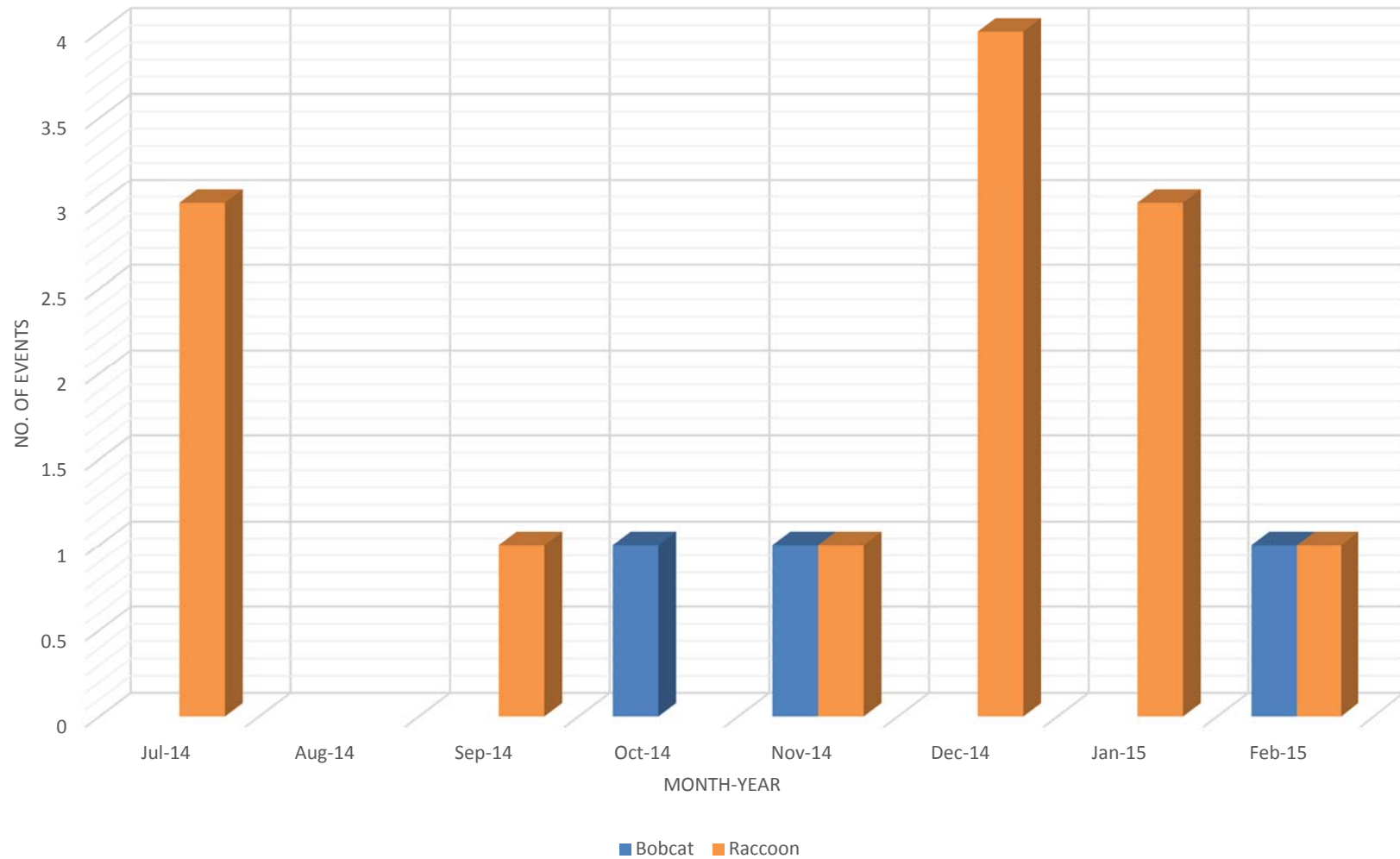
## Cameras M6-1N & M6-1S



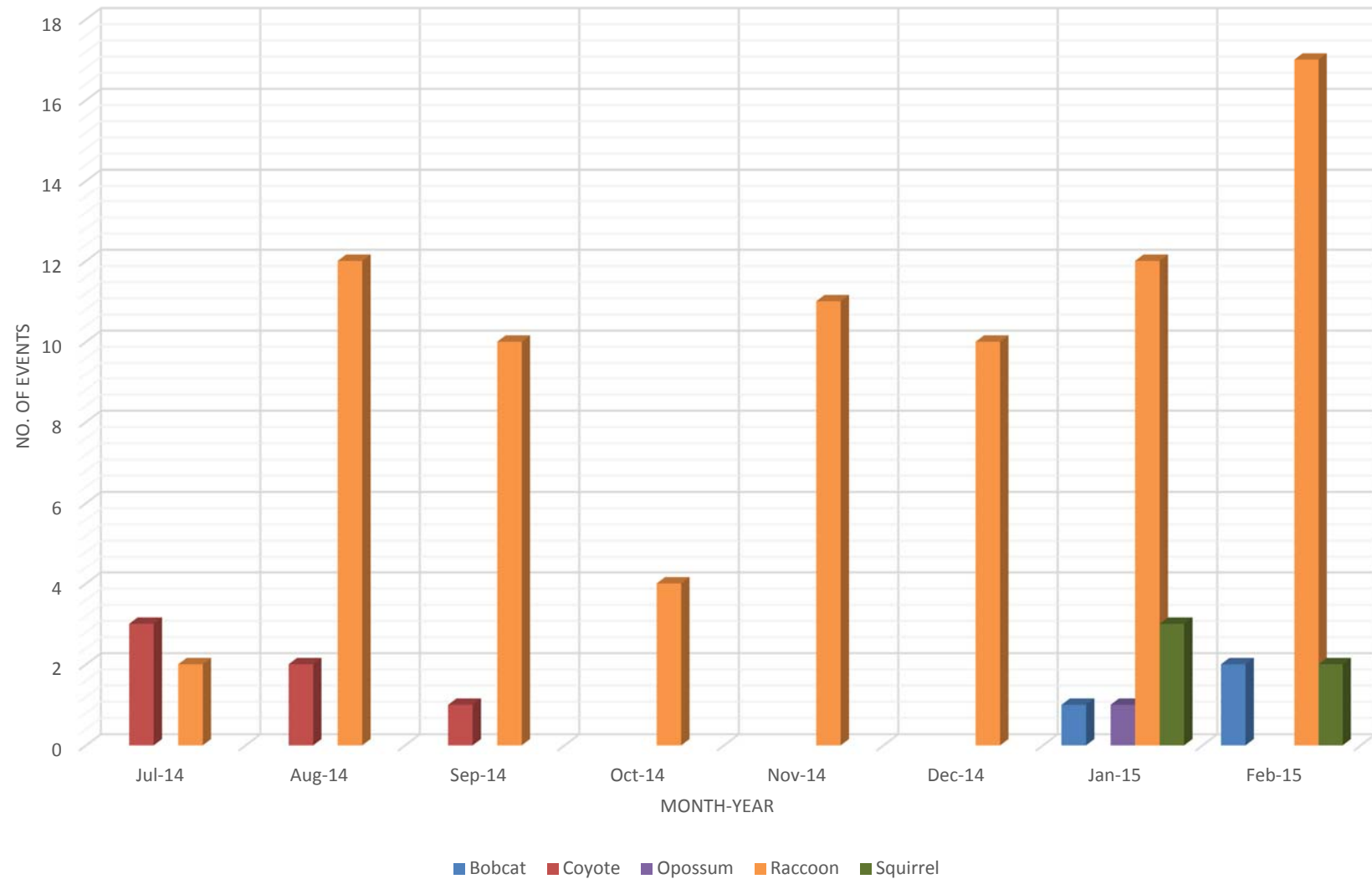
## Camera M6-3



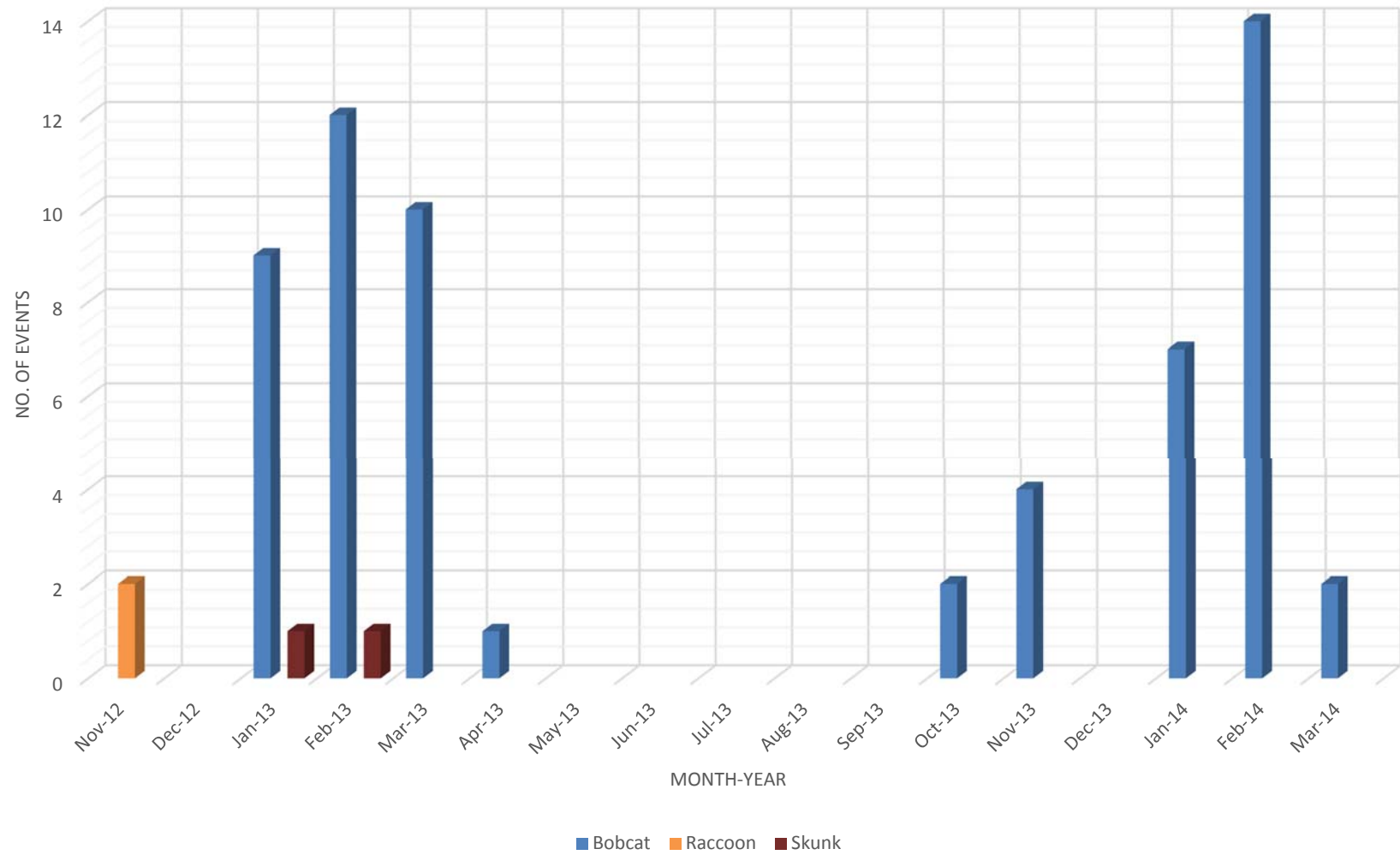
## Post-fire Camera



## Camera CC3-1

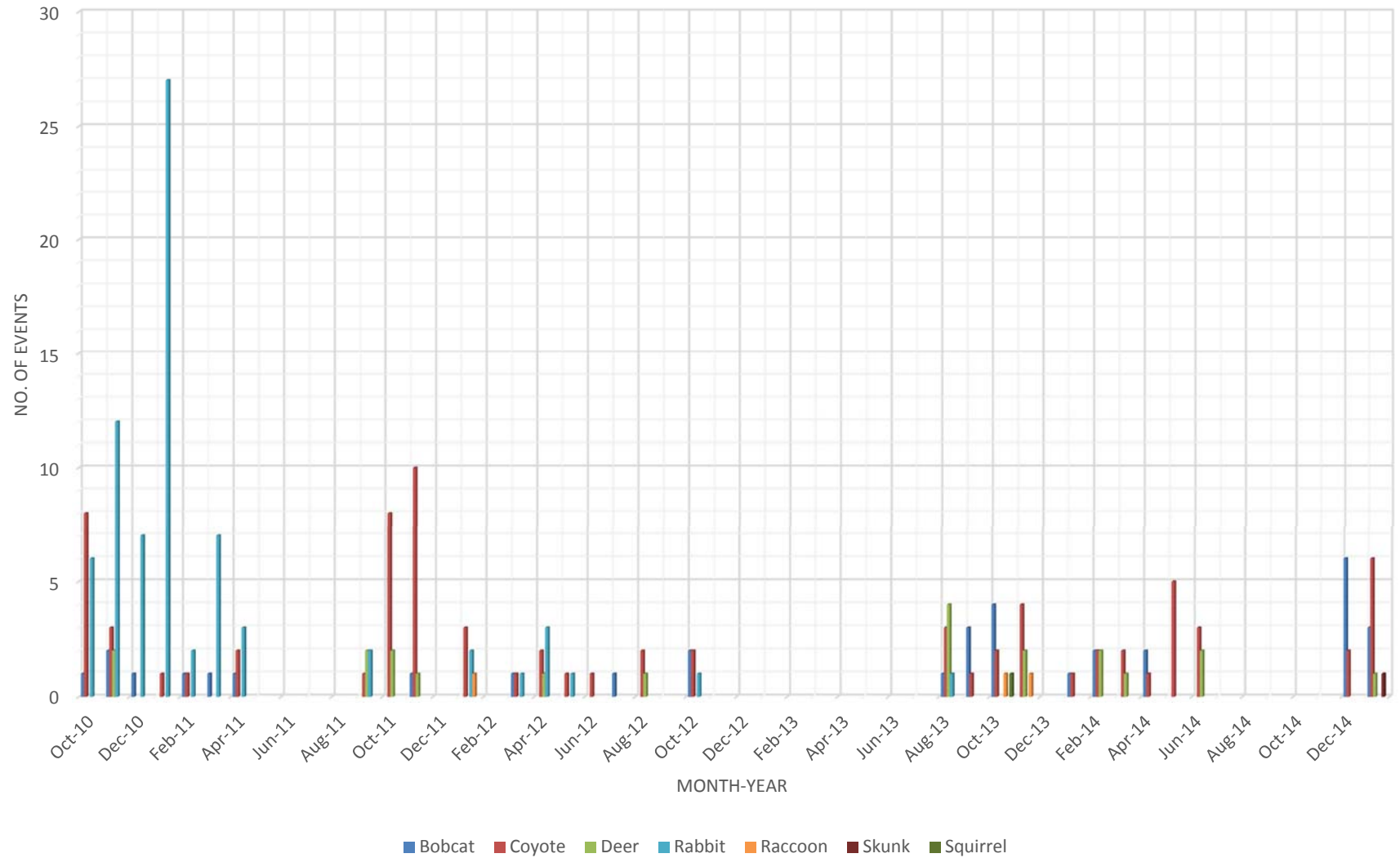


## Camera EW3-6a

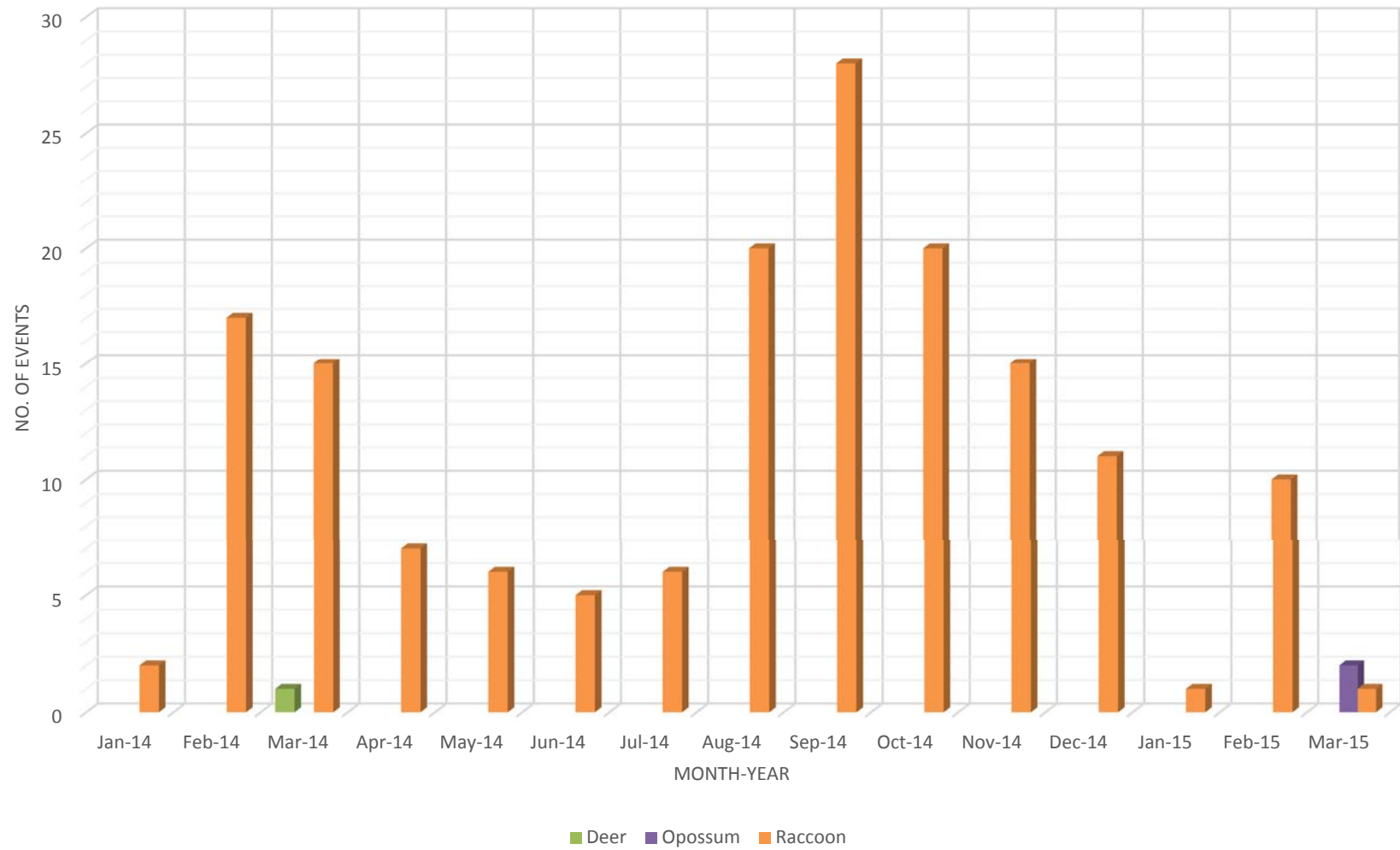




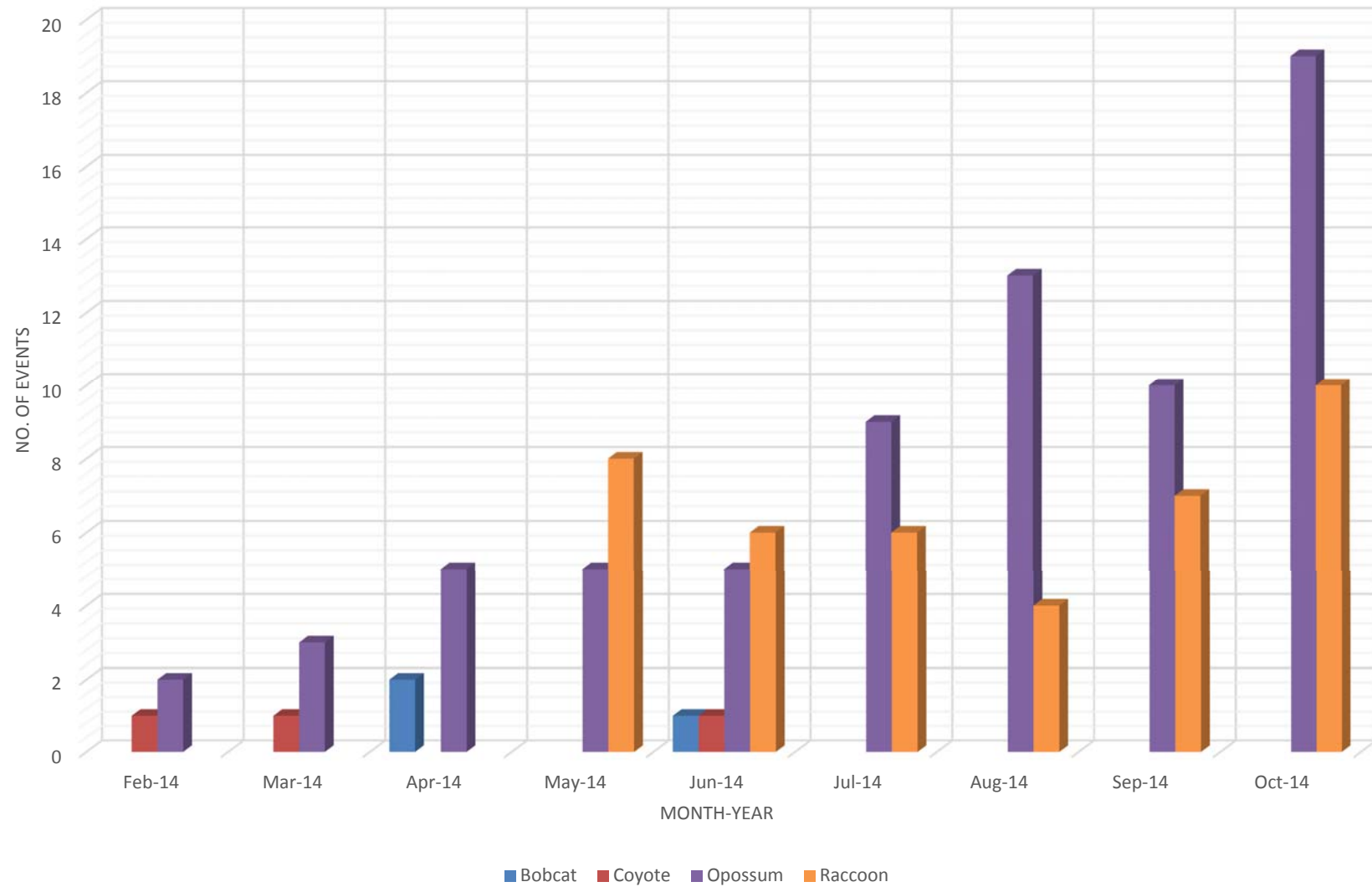
## Camera EW3-6b



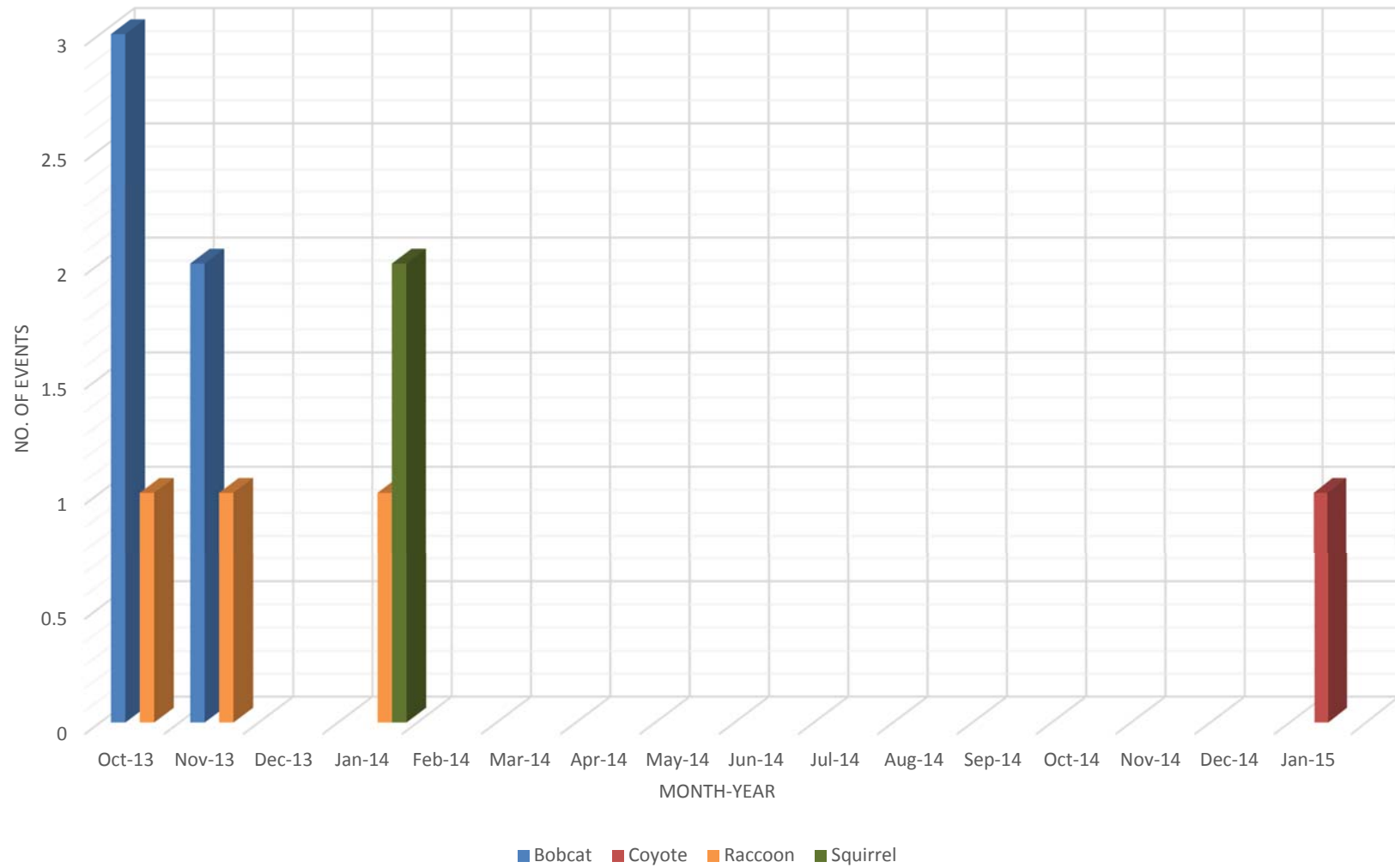
## Cameras EW3-13a & EW3-13b



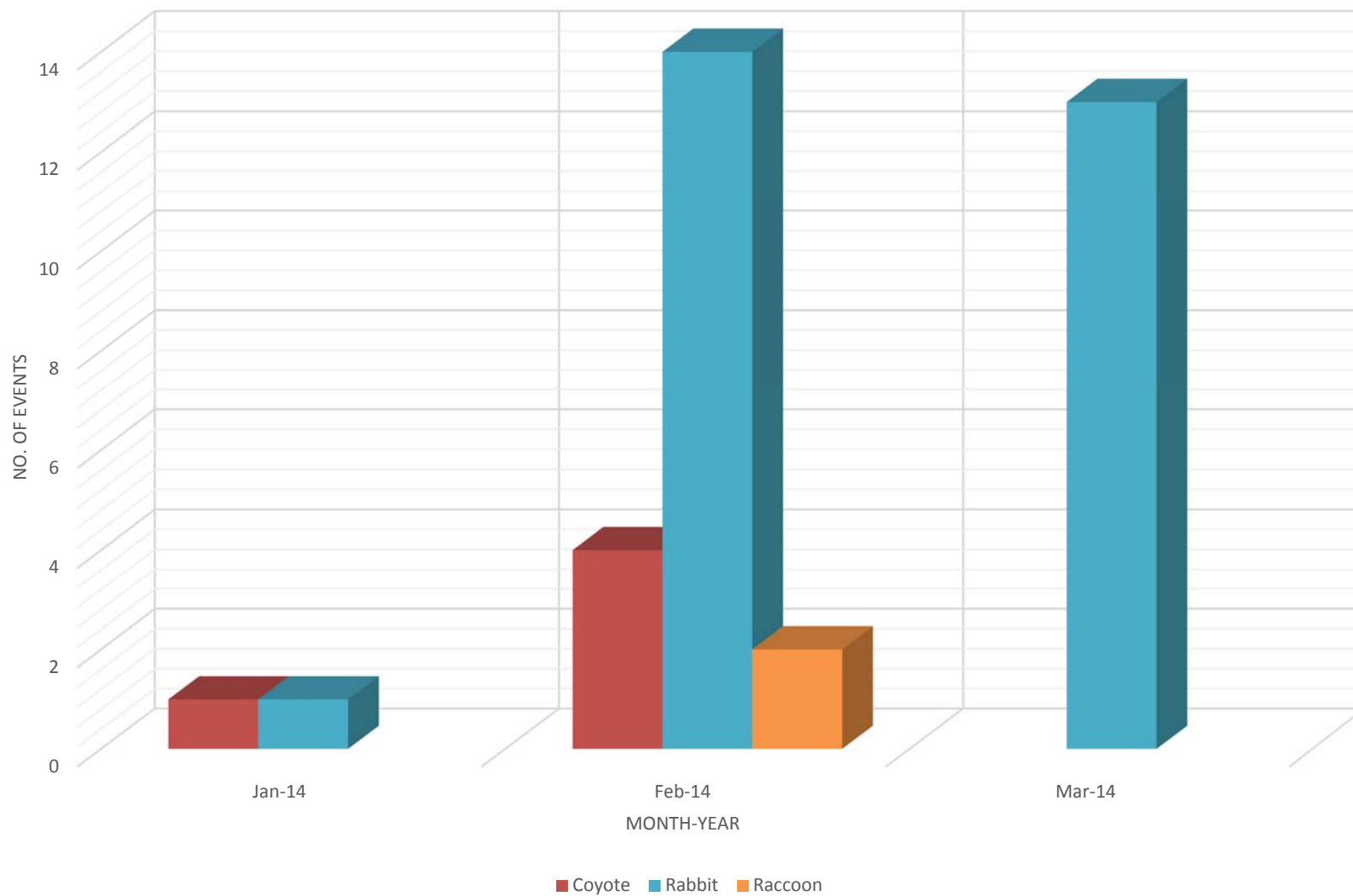
## Camera EW3-10a



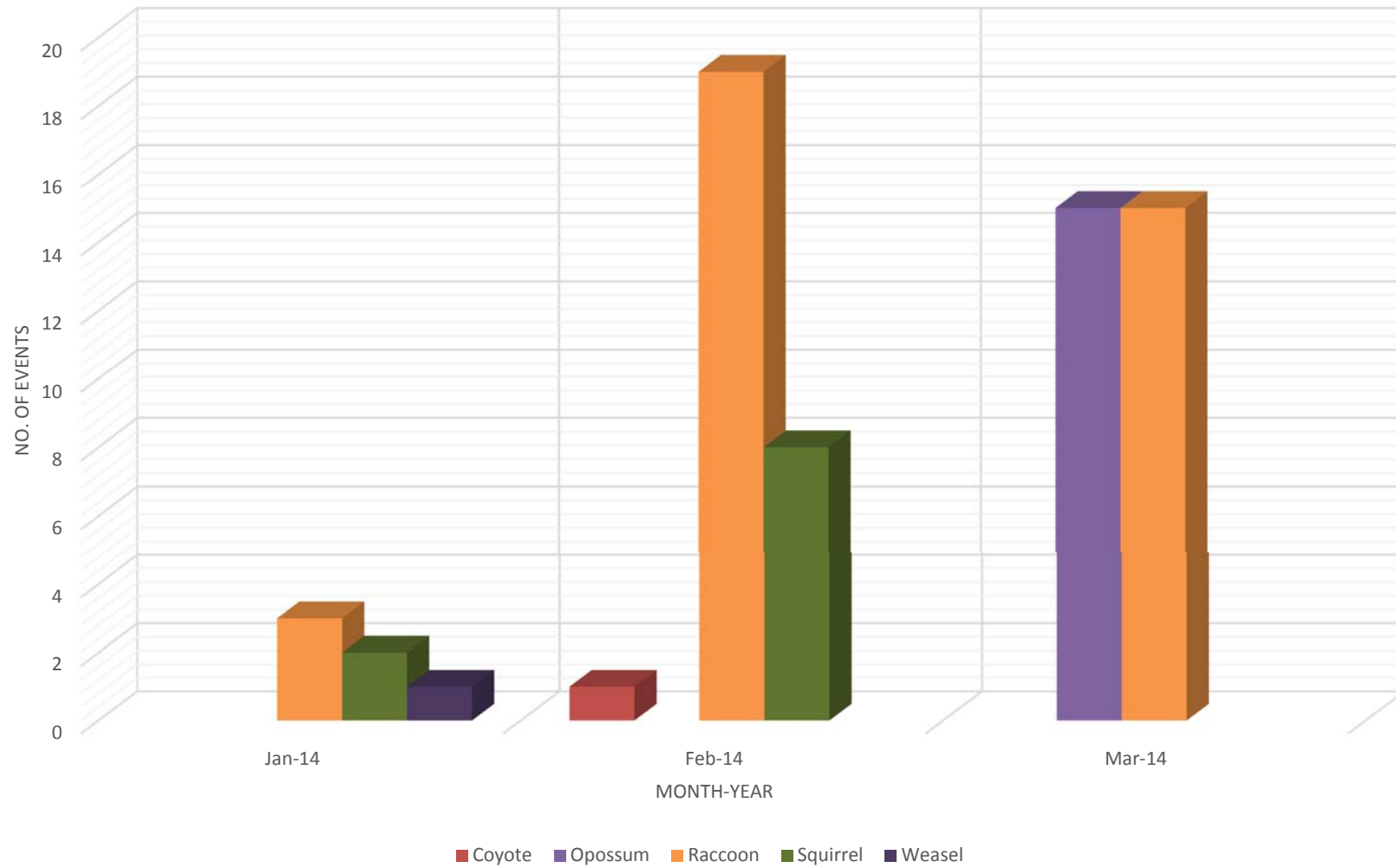
## Camera M10-1



## Camera CC3-6b



## Camera EW3-7





## 3.2 Tracking Stations

During the initial evaluation of the corridors and potential pinch points in the field, numerous wildlife tracks were observed in many of the undercrossings and bridges (see notes on Pinchpoint Descriptions contained in Appendix E). This information was documented and included in the overall linkage assessment. After the field evaluation was completed, it was determined that the most important undercrossings could be evaluated with cameras, which would provide more useful information than tracking stations. Therefore, tracking stations were not used to evaluate movement through potential pinch point areas. However, once all of the cameras had been deployed, the team decided to establish a tracking transect in the Calavera Hills Habitat Conservation Area with the assistance of the San Diego Tracking Team (SDTT) and Preserve Calavera to fill in some of the data gaps. Specifically, the transects were established to document movement between what is known as “Village H” through “Village K” and then to Lake Calavera/Calavera Mountain (“Calavera Hills Movement Corridor”) (Figure 8). To augment the tracking, a wildlife movement camera was installed in the middle of “Village K” to document movement in this parcel.

### Other tracking efforts

The San Diego Tracking Team (SDTT) has been conducting tracking transects at Rancho Santa Fe Road near Fire Station #6 (EW3-6) for at least five years.

Transects have been run two to four times per year during this time. This transect includes areas outside the tunnel and through the tunnel at this location. Although not part of this study, the primary result of these surveys is that few animal tracks have been observed going through the tunnel. However, deer, coyote, bobcat, raccoon, skunk, rabbit and opossum

tracks have been observed on both sides of the tunnel. CNLM recently installed a camera in the sky light of the tunnel which captured bobcat, skunk and raccoon. However, movement appears to be limited through this tunnel.



### Method

The entire length of the transects at Calavera Hills were divided into six segments. Each segment was visited ten times between September 9, 2014 and January 23, 2015. The standard protocol used by SDTT was employed. This method includes walking slowly along the transects and noting species observed, the type of sign (i.e. track, scat, etc.), and the presence of cottontail, ground squirrels and/or small rodents.

### Results

Figure 8 shows the location of the six segments of the transect located in the Calavera Hills Habitat Conservation Area. The results are as follows:

Section 1: Section 1 of the transect is located east of College Avenue, along the water district access road (dirt). Species detected were coyote, bobcat, raccoon, striped skunk, and a woodrat nest. Cottontail rabbit, small rodent and ground squirrels signs were observed.

Section 2: Section 2 of the transect is located in the eastern parcel of Village K, and starts near College Avenue and goes to about the middle of the parcel and stops where the wildlife camera is located. The transect is along a wildlife trail that appears to get regular wildlife usage. Species detected were coyote, bobcat, striped skunk, roadrunner, and woodrat nest. Other than the woodrat, all these species were observed in the wildlife camera located along this portion of the transect. Cottontail rabbit, small rodent and ground squirrels signs were observed.

Section 3: Section 3 of the transect is located in the eastern parcel of Village K and starts at the middle of the parcel, near the wildlife camera, and stops at Glasgow Road. It is a continuation of the wildlife trail that runs through this parcel. Species observed were coyote, bobcat, striped skunk, raccoon, and a woodrat nest. Cottontail rabbit sign was observed.

Section 4: Section 4 of the transect is located in the western parcel of Village K, along Glasgow Road. Species observed were coyote, striped skunk, woodrat nest, roadrunner, and raccoon. Cottontail rabbit sign was observed.

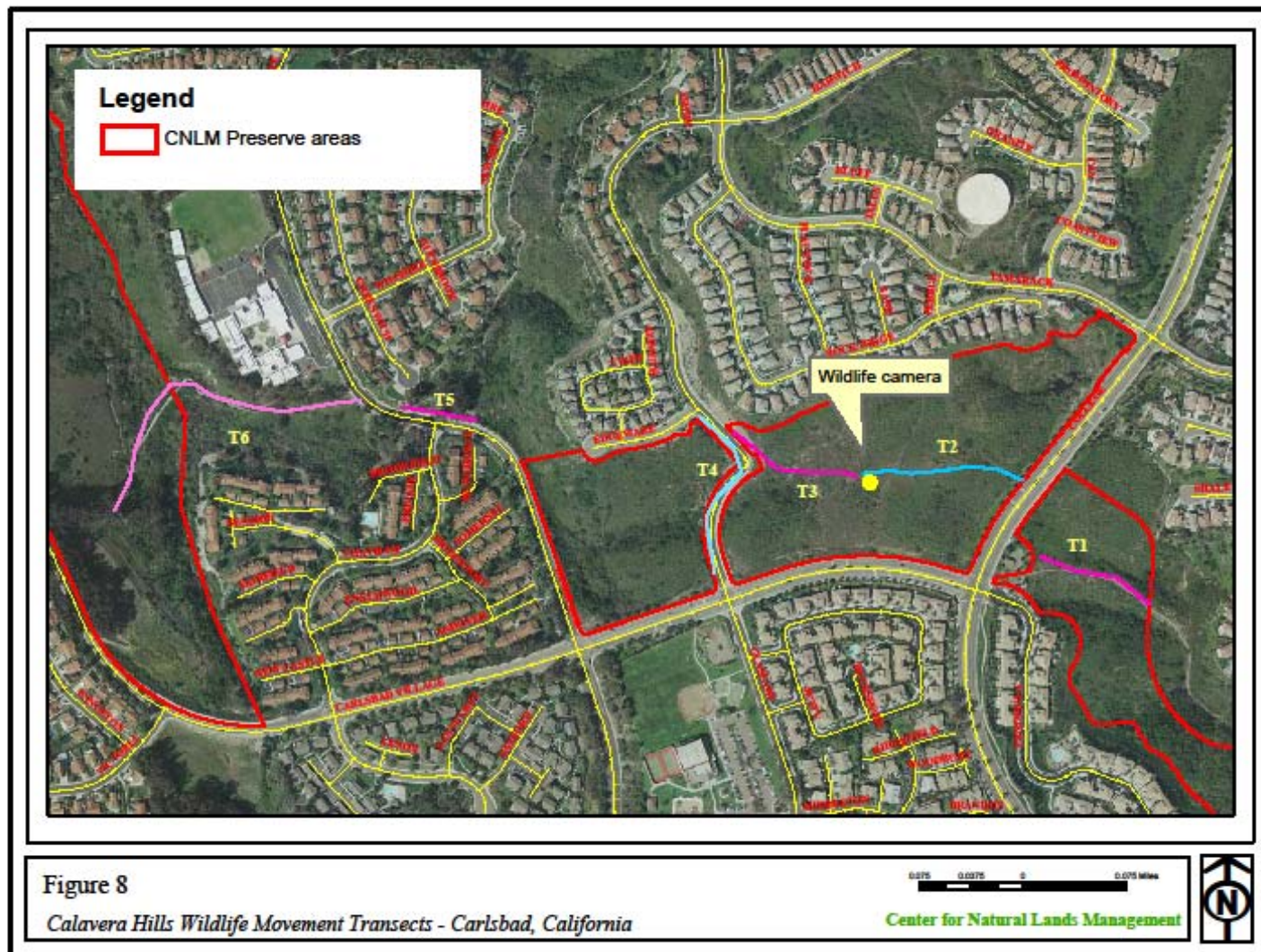
Section 5: Section 5 of the transect is located along the northern side of Tamarack Avenue, across the street from the elementary school. The only species observed was coyote. Cottontail rabbit and small rodent signs were observed.

Section 6: Section 5 of the transect starts at Tamarack and goes along the City trail into Village H. Species observed include bobcat, coyote, striped skunk, opossum, and raccoon. Tracks were evident that are consistent with Ringtail, however no independent confirmation was available at the time of the study. Cottontail rabbit and ground squirrel signs were observed.

In general, species sign (track, scat, etc.) were most abundant within sections 2 and 3 of the transect. These areas are fenced off from the public and are the furthest from roads. All species detected during tracking were also noted in the wildlife camera results for Village K.

## **Discussion**

The Calavera Hills Movement Corridor is the one natural link between Calavera Lake and Mountain and Buena Vista Ecological Reserve (BVER). Although this study did not address smaller species, such as snakes and lizards, there is clear movement activity of primary, medium- sized mammals using this area. Coyote and bobcat were frequently observed both by tracking and by the camera (Figure 6) in Village K, which is the center of the movement corridor. These data show the functionality of the corridor. Additional studies of radio/GPS collared coyote and/or bobcat would be ideal in this location.



### 3.3 Linkage Functionality

#### EW1 Linkage Functionality

EW-1 is a movement corridor that connects Buena Vista Lagoon and Beaches to the Buena Vista Ecological Reserve. Most of the corridor is along Buena Vista Creek, which runs along SR-78 and is crossed several times by roads and bridges. Several undercrossings on the west side of the corridor, including Carlsbad Boulevard, Interstate 5, and Jefferson Street are filled with water year round, and there is intense homeless activity, which may preclude movement by any wildlife species in these areas. No cameras were used in these areas, as it was assumed the cameras would be stolen or vandalized and too dangerous to install. The remaining portion of the corridor is less constrained, although there are occasional impediments to movement, such as the fencing around the golf practice facility near EW1-6. This movement area is likely constrained for coyote, bobcat and other species which were the focus of this study. Movement appears to be much less constrained east of the golf facility all the way to the border with Oceanside. College Boulevard, which is located in Oceanside, is likely to be a barrier to movement (i.e., it is a busy divided highway near a large mall, and is likely be heavily used by people); however, it was not included in this study. Future constraints to movement might occur as a result of the residential development planned on both sides of the creek, which is being restored in this area as part of the Quarry Creek Reclamation Project. However, mitigation requirements for the residential development and quarry reclamation project include access control and long-term management of the conserved habitat in this area (i.e., Quarry Creek Preserve).



#### EW2 Linkage Functionality

EW-2 is a movement corridor that connects Agua Hedionda Lagoon east to Calavera Mountain/Calavera Lake (northern branch) and along Agua Hedionda Creek/La Mirada Creek out to the Carlsbad Raceway Preserve and City of Vista (southern branch). As is EW1, EW2 is highly constrained from Interstate 5 toward the west, and there is little habitat to support much terrestrial wildlife, except for raccoons, are not deterred by water and are tolerant of modest levels of development.

Along the northern branch, movement is constrained across El Camino Real (pinchpoint EW2-1). There is one box culvert that extends under the road from Agua Hedionda Ecological Reserve into Robertson Ranch Preserve; however, the substrate was completely inundated during the site visit, which was conducted in the fall during a drought year. As such, movement would have to occur across El Camino Real, a busy, divided major roadway. The corridor from El Camino Real to the north is unconstrained until EW2-3 at College Boulevard. This undercrossing does not appear to impede movement. A camera installed at this location by CNLM for ten days in



October of 2012 yielded 39 photographs of coyote, skunk, squirrel, opossum, rabbit and roadrunner. No bobcat or deer were photographed. The tunnel is about high, which may not be tall enough to function for deer. Movement beyond this point to core habitat within Lake Calavera Preserve is unimpeded.

Movement along the south branch occurs from Agua Hedionda Ecological Reserve, under Cannon Road (EW2-4), across a small vegetated area and under El Camino Real (EW2-5), along Agua Hedionda Creek, which runs in a southwesterly direction, through Rancho Carlsbad Golf Club, under Faraday Avenue (EW2-9), along the creek to Melrose Drive (EW2-10) and beyond. Prior to installing cameras, it appeared that the primary barrier to movement was at the intersection of El Camino Real and Cannon Road



(EW2-4 and EW2-5). Cameras were installed at these locations and were operational from January 2014 to October 2014 at which time they were stolen. Wildlife observed under both bridges were coyote, bobcat, opossum, raccoon and skunk (Figures 6). Cottontail rabbit was observed at EW2-5 but not EW2-4. One of the concerns observed in this area during the initial site visit was the presence of dense willows located between EW2-4 and EW2-5, which could impede movement. It was noted that much of this vegetation was knocked over after winter rainfall. Regardless, as shown by the cameras and tracks observed throughout both undercrossings, animal movement is active and these pinch points do not seem to stop wildlife from moving from the lagoon inland. Deer was the only notable species that was absent. The camera at EW2-6, on Agua Hedionda Creek within Rancho Carlsbad, captured some coyote movement; however, the camera may have been too far from the path to capture most animals and the area and surrounding golf course are very unconstrained. Mule deer have been



observed at EW2-9 and are known from the Sunny Creek Road area between pinch points EW2-8 and EW2-9. They could travel down Agua Hedionda Creek to the Cannon/El Camino Real intersection. The crossing under EW2-5 is probably too vertically constrained (lower than 1.5 meters tall in most areas) to allow deer passage, possibly explaining why no deer were observed there. In addition, it is possible that the vegetation in the middle of EW2-4 and EW2-5 when dense, does not provide

visibility through the movement area for deer, and they may stop at this location and turn around.

There are few impediments between EW2-4/EW2-5 eastward up until the creek crosses Faraday Avenue at the Carlsbad Oaks North Preserve (EW2-9). The camera data at EW 2-9 suggests that this is a functional undercrossing. Species observed include bobcat, coyote, deer, raccoon, skunk, squirrel and opossum (Figure 6). CNLM has monitored this location since October 2012. Only one deer has been observed. Vegetation on the north side of this tunnel is dense, and it is possible that the deer do not pass through regularly because they cannot see an exit route. Deer are commonly observed by CNLM staff on both sides of Faraday and fresh tracks have been observed several times in the tunnel, but it appears the animals did not pass through (i.e., there was no photo). Construction workers in the area have mentioned that they regularly see deer cross Faraday Avenue at the street level.

M2 is a minor corridor that runs parallel to (on the east side of) Cannon Road, splitting off from the south branch of the EW2 corridor. M2-1 is a long, cement-lined culvert that connects the M2 corridor to the Calavera Hills II Preserve just west of the Sage Creek High School. This is the portion of Calavera Creek that runs under the intersection of Cannon Road and College Boulevard. The tunnel is extremely long, and does not appear to provide a functional avenue for wildlife movement. Only raccoon was observed at this location.

### EW3 Linkage Functionality



EW-3 is a movement corridor that connects Batiquitos Lagoon east to the Rancho La Costa Preserve via two routes; one route is up along San Marcos Creek and the other is along Encinitas Creek (Figure 7). Like EW1 and EW2, EW3 is highly constrained from Interstate 5 toward the west, and there is little habitat to support much terrestrial wildlife west of El Camino Real. A camera could not be mounted at EW3-1 as this area signs of intense homeless use. The bridge is less than 1.5 meters high and is partially inundated. However, tracks of

coyote, raccoon, skunk, opossum, rabbit, rodent, lizard/snake were observed during the initial field evaluations.

Along the northern branch of EW3, no cameras were mounted along the corridor between El Camino Real and Rancho La Costa Preserve at Rancho Santa Fe Road (EW3-5 and EW3-6). This area consists of an open golf course and open undeveloped habitat along the creek, and should therefore, be easy for animal movement. However, for the first 90 meters east of El Camino Real, there is rip-rap along the edges of the creek and water is likely present year round. Further east, at EW3-6a, the corridor runs under a large undercrossing under Rancho Santa Fe



Road. It is nearly 90 meters long, 3.7 meters high and 1.5 meters wide. There is chain link fence along Rancho Santa Fe Road to guide animals through the tunnel. Only bobcat, skunk and raccoon were observed in 9 months of wildlife camera tracking. SDTT has tracked this tunnel for over five years with no more species observations than what was captured by the camera. EW-3-6b is a camera mounted on a post about 46 meters east of the tunnel entrance along a noticeable animal trail. CNLM has had a camera mounted at this location since October of 2010. Coyote, bobcat, mule deer, rabbit, and ground squirrel have been captured by this camera. Additionally, deer tracks have been observed along the slopes of Rancho Santa Fe at this location, and it is clear they are going around the fences and across the road. It is unclear why deer are not moving through this tunnel. No wildlife movement impediment is anticipated at EW-3-5 as this is a large, tall and wide bridge overcrossing. Deer track and other tracks have been observed under this crossing.

Along the southern branch of EW 3, the corridor runs from Batiquitos Lagoon along Encinitas Creek south to the intersection of Leucadia Boulevard and El Camino Real where the corridor turns to the east to Rancho La Costa Preserve. The biggest impediments to movements are located at La Costa Avenue (EW3-7), El Camino Real (EW3-10a) and Rancho Santa Fe Road (EW3-13). The camera at EW3-7 captured coyote, opossum, raccoon, squirrel and weasel. This suggests that this



undercrossing is functional despite the presence of dense vegetation on both sides of the tunnel, and the relatively low ceiling of the undercrossing (1.9 meters high). There is also no fencing at EW3-7 along La Costa Avenue directing wildlife to the undercrossing. After three months, this camera was stolen. Movement between EW3-7 and EW3-10a is not likely constrained. Bridges across Encinitas Creek are high and wide. Vegetation in some areas is very dense, but animals can likely move through it. Movement under EW3-10a is likely restricted. It is very dark, long, low and muddy. Only coyote and opossum were captured by the camera. As with EW3-7, the camera was stolen after three months. Movement between EW3-10a and EW3-13 should be fairly unimpeded, other than a few potential barriers which could not be addressed as they were on private property and fenced off. There is dense willow woodland and several large pipes where roads cross the creek. The cameras at EW3-13a and EW3-13b captured images of raccoon, and a deer just outside the tunnel opening on the east side. This tunnel is very low and deer do not likely pass through. Movement east of EW3-13 is not constrained and should be viable out to Rancho La Costa for most species.

### **Core-to-core Linkage Functionality**

EW1 and EW2 and the core areas they serve are primarily connected by CC1. CC1 traverses from Buena Vista Creek through Calavera Hills to Calavera Lake/Mountain. Tracking transects

(see section 3.4) and wildlife cameras captured several species that likely move along this movement corridor despite its highly urban nature and road crossings - bobcat, coyote, raccoon, skunk, squirrel, rabbit, roadrunner and even a possible ringtail were observed using CC1.

EW2 and EW3 and the core areas they serve are primarily connected by CC2, west of El Camino Real. CC2 is made up of a labyrinth of connective routes each with its strengths and weaknesses. Movement from Agua Hedionda Lagoon through Crossings Golf Course is constrained by Cannon Road (CC2-1), College Boulevard (CC2-3), and Palomar Airport Road (CC2-4). These are all divided major roadways with a high volume of traffic, and are likely barriers for most species. Movement from Palomar Airport Road southward toward Batiquitos Lagoon is challenging for most species. Although there are several patches of open habitat that likely support a high diversity of animals, there are many roads, fences and other impediments along the way (CC2-5 to CC2-10a and CC2-14). After the Poinsettia Fire in May 2014, a camera was installed in a culvert under Ambrosia Lane to see if wildlife were using the culvert to move between habitat along CC2 and larger blocks of habitat to the east. Both bobcat and raccoon were recorded by the camera.

CC3 runs from EW3 to Poinsettia Lane through a golf course, turns east west paralleling Poinsettia Lane, and then turns north to connect with EW2. Alga Road (CC3-1) is a barrier to movement along the north-south portion of this corridor, although raccoon, coyote, opossum and bobcat were captured by the camera at this location. Barriers along the east-west portion of this corridor include Alicante Road (CC3-2), El Fuerte Street (CC3-3), and Melrose Drive (CC3-4). Palomar Airport Road (CC3-5) and Lionshead Avenue (CC3-6) serve as additional barriers as the road turns north to connect with EW2. The undercrossing at CC3-6 was designed to provide a connection within the Carlsbad Raceway Preserve; however frequent and intense human activity likely reduces its effectiveness. Regardless, cameras at CC3-6a and CC3-6b recorded coyote, rabbit and raccoons, suggesting that these species are in the area and use this underpass.

### **Minor Linkages**

Several minor movement corridors were located during this study. One, M1-1 to M-1-4 to EW 2-11, connects Village H to Robertson Ranch West Village and Agua Hedionda Lagoon. There are a number of barriers to movement in this area, including a wrought-iron fence at Carlsbad Village Drive, Tamarack Avenue and current construction of Robertson Ranch West Village residential area. Most species can likely navigate under the fence at Carlsbad Village Drive, but it is not ideal. Crossing Tamarack Avenue will pose many problems for most species.

Corridor M5 connects EW2 to The Crossings Golf Course (CC2 corridor). Frost Street (M5-1) crosses this corridor but does not appear to impede movement; bobcat, rabbit, raccoon, skunk, squirrel and opossum were captured on the camera at this underpass. Faraday Avenue is a fairly busy street and a chain link fence runs along the length of the road. There is an underpass at M5-2 allowing hikers to pass underneath Faraday Avenue to trails on the golf course; however, gates that block the entrance are closed and locked every night by golf course staff.

Movement along Encinas Creek eastward (M6-1 to M7-5) to El Camino Real is possible for many species; however, several roads cross the creek, which may impede movement. Bobcat, raccoon, coyote, and skunk have been observed in cameras at the Encinas Creek Preserve, west of Hidden Valley Road (M6-1) and in the underpass at M6-3. In addition to these species, opossum were also observed at M6-3. Movement from M7-5 northward to the EW2 corridor is mostly constrained by Palomar Airport Road and will be virtually truncated when vacate industrial lots within Bressi Ranch are developed.

Movement between La Costa Greens (M8-1 to M8-4) and Box Canyon (Rancho La Costa) is possible, but Alga Road is problematic, and there is a large fence on the south side of the road that would block many species from crossing. A camera was placed at M8-3; however, no wildlife was recorded because the camera was installed too close to vegetation, resulting in only false triggers of moving vegetation.

A notable bright spot for minor movement is the narrow corridor that connects Encinitas Creek to upland areas at La Costa Glen through a corridor between commercial real estate and under Calle Barcelona (M11-1). Numerous wildlife photos were taken at M11-1, under Calle Barcelona, of bobcat, coyote, opossum, rabbit, raccoon, and skunk. Conversely, few pictures were taken under Leucadia Boulevard, which connects Carlsbad open space to Encinitas open space; only a few photos of bobcat, raccoon and squirrel were observed. This undercrossing has vegetation blocking the north side, and more frequent use of homeless people.

### 3.4 Adaptive Management Recommendations



One of the required tasks in the wildlife movement study is the derivation of adaptive management recommendations to improve connectivity. While only one year of monitoring at limited locations within the city does not provide a significant amount of data, and further study is needed to answer many questions, the information gathered through physical inspection of each of the pinchpoints and camera imagery

allows for many conclusions. The adaptive management recommendations generally include the clearing of vegetation, adjustments to existing fencing, installation of new fencing, removal of sediment, and improvements to existing facilities. The implementation of these adaptive management recommendations is subject to available funding, property owner permission, and/or permitting by other agencies.

One of the most pervasive adaptive management recommendations involves clearing vegetation near and/or between pinchpoints. The opportunity for animal movement could be improved through vegetation clearing at the entrances and/or approaches to the following

pinchpoints: EW1-6, EW2-1, EW2-4, EW2-5, EW2-7, EW2-8, EW2-9, EW3-4, EW3-7, EW3-13, CC2-2, CC3-3b, M6-1, M10-1 and M11-1. The vegetation between EW2-4 and EW2-5 is cleared periodically as part of city drainage easement maintenance. Given the riparian location of many of the pinchpoints, the clearing of vegetation may require permits from other agencies.

Since many of the pinchpoints are culverts or bridges, sedimentation that reduces the height of the undercrossing can impede movement, especially for deer. The opportunity for animal movement could be improved through sediment clearing at the entrances and/or inside of the following pinchpoints: EW2-1, EW2-5, EW3-1, EW3-10a, CC1-2 and CC2-4. Sediment removal at these locations would have the synergistic effect of increasing storm flow capacity and would likely require permits from other agencies.

There are several locations where existing fencing may hinder wildlife movement, mostly at at-grade crossings. The opportunity for animal movement could be improved through modifications to the fencing at the following pinchpoints: CC2-3, M1-1, M1-2 and M6-4. Since fencing is typically installed for security reasons, any modifications to fencing must balance this need with wildlife movement improvement. For example, the fencing at M1-2 was installed to address a long standing issue of human occupancy of the undercrossing. Also, as mentioned in Section 3.3, the tunnel under Faraday Avenue at M5-2a that allows access between Veterans Park and the Crossings Golf Course preserve is closed with a locking gate each night for security reasons.

The installation of fencing can be useful if a viable alternative route, typically an undercrossing, is available. Fencing can also be used to restrict human access to an area with the possible benefit of protecting the pinchpoint and making the area more conducive to animal use. As discussed in Section 3.3, however, the installation of fencing does not always guide animals to the undercrossing; deer approaching EW3-6a go around the fencing along Rancho Santa Fe Road rather than using the tunnel, which is 3.7 meters high and 4.6 meters wide. Any recommendation for fencing to guide animals should be implemented only after a more detailed study of roadkill, tracking, and perhaps camera monitoring is completed. In the future, the area around EW3-1 and EW3-7 leading out from Batiquitos Lagoon may benefit from fencing to preclude human access, as well as both sides of the tunnel at EW2-9.

Similar to fencing, adaptive management recommendations involving improvements to existing infrastructure require additional study. There are a number of pinch points that are inundated with water on a regular or continuous basis. Installation of “benches” or elevated walkways to improve animal movement may be possible; however, some culverts are too short to accommodate this feature. Also, the benches can catch debris during storm flows, which can result in diminished capacity and possible flooding. More information is needed to determine the animal occupancy of the surrounding areas and the species that may benefit from such infrastructure improvements.

### 3.5 Next Steps and Potential Areas of Future Study

Based upon availability of resources, the city intends to continue some camera monitoring as does CNLM and, possibly, other preserve managers. The city will also explore the feasibility of the adaptive management recommendations described in Section 3.4. While the wildlife movement study conducted under this Local Assistance Grant provided valuable information about the location of target species and the functionality of corridors, there are many potential areas of future study.

There were several pinchpoint locations where camera monitoring was not conducted or was conducted for a short period of time. Placing cameras at those locations would add to the knowledge of the entire HMP system. Some possible areas of study involving identified pinchpoints include:

- A detailed study of EW1 by tracing animal movement from the eastern city boundary westward and tracking/camera monitoring within the Buena Vista Creek and Buena Vista Lagoon Ecological Reserves could be beneficial. The critical question is if the physical constraints and heavy human occupancy at El Camino Real and surrounding areas truncate movement along Buena Vista Creek. Given the prevalence of homeless in that part of the city, any future study would require concurrent Police Department coordination and could result in pushing homeless encampments into the adjacent HMP preserves.
- Given the apparently high function of the EW2 movement corridor, a better understanding of this area could be gained by returning a camera to EW2-3, adding a camera to EW2-7 and EW2-10, and expanding the number of tracking stations in Calavera Hills.
- To gain more information about the function of EW3, replacing the camera at EW3-7 and locating a camera at EW3-1 could help understand the extent of bobcat movement in that area, since none have been observed near the southeastern portion of the Batiquitos Lagoon Ecological Reserve. As with EW1 near El Camino Real, camera monitoring at EW3-1 will require coordination with the Police Department due to heavy human occupancy. This monitoring could coincide with the placement of fencing, if that adaptive management action can be funded. A camera at EW3-11, as well as camera(s) upstream of EW3-13b, could also provide useful information.
- The study did not explore movement through the Aviara area, most notably its connection with the northern portion of the Batiquitos Lagoon Ecological Reserve. A combination of cameras and tracking along the different branches of the CC2 corridor would be helpful.

Another subject to study further would be to focus on specific species, such as bobcat and/or deer. Bobcat was noted at numerous locations throughout the city but little is known about the overall population. Analyzing existing and future camera monitoring data to identify individuals, increasing the density of cameras around sighting locations, and radio/GPS collaring of animals would help provide valuable information. These efforts are much more resource intensive and would require outside funding and coordination with other organizations. Likewise, deer movement is not well understood. Deer have been observed at several locations in the interior of the city, such as Calavera Creek, Carlsbad Oaks North, Kelly Ranch, and the Crossings Golf

Course, but it is not known how they traveled there. The presence of deer and the lack of roadkill show that successful movement is taking place but more information on the travel routes could inform adaptive management actions that could improve movement.

While this study was invaluable in providing a better understanding of movement within the city, information on the movement on the subregional level is critical to any study of connectivity. There are no current studies on connectivity within the MHCP area and limited work being done east of Carlsbad. Nonetheless, some subregional movement has occurred because a tagged bobcat which came from either Bonsall or the Penasquitos area (Megan Jennings, personal communication, March 11, 2015) was observed at CC3-1. Connectivity assessments similar to those conducted in the MSCP areas are vitally needed to guide strategic land acquisitions in the MHCP area.



# Section 4

## References

- Carr, T., R. Dacanay, K. Drake, C. Everson, A. Sperry, and K. Sullivan. 2003. Wildlife Crossings: Rethinking Road Design to Improve Safety and Reconnect Habitat.
- City of Carlsbad (City). 2004. Habitat Management Plan for the Natural Communities in the City of Carlsbad.
- Conservation Biology Institute (CBI). 2003a. Review of Regional Habitat Linkage Monitoring Locations for the Multiple Species Conservation Program. Prepared for the California Department of Fish and Game.
- Conservation Biology Institute (CBI). 2003b. Wildlife Corridor Monitoring Study for the Multiple Species Conservation Program. Prepared for the California Department of Fish and Game.
- Conservation Biology Institute (CBI). 2003c. MSCP Linkage Description Log Part A. *in*: Review of Regional Habitat Linkage Monitoring Locations, prepared for the Multiple Species Conservation Program, January 2003.
- Conservation Biology Institute (CBI). 2003d. Part B Crook's Measurements for Carnivore Sampling. *in*: Review of Regional Habitat Linkage Monitoring Locations, prepared for the Multiple Species Conservation Program, January 2003. Conservation Biology Institute (CBI). 2002. Wildlife Corridor Monitoring Study for the Multiple Species Conservation Program. Prepared for the City of Poway, the City of San Diego, and the California Department of Fish and Game.
- County of San Diego Department of General Services (County). 2008. Carlsbad Dead Animal Removal Log from July 2007 through September 2008.
- Dudek. 2010. College and Cannon Carlsbad High School Wildlife Movement Study. Prepared for the Carlsbad Unified School District.
- Environmental Science Associates, Inc. (ESA). 2012. City of Carlsbad Habitat Management Plan Annual Report and Monitoring Summary, Year 7. Prepared for the City of Carlsbad, on behalf of Technology Associates International Corporation.
- Jennings, Megan. 2015. Personal communication.
- Kintsch, J., and P. Cramer. 2011. Permeability of Existing Structures for Terrestrial Wildlife: A Passage Assessment System. Appendix B: Passage Assessment System (PAS) datasheets and user's guide. Prepared for the Washington State Department of Transportation.

- Meiklejohn, K., R. Ament, and G. Tabor. 2009. Habitat Corridors and Landscape Connectivity: Clarifying the Terminology. Center for Large Landscape Conservation
- Merkel & Associates, Inc. 2007a. Review of Road-Kill Potential on El Camino Real, along Robertson Ranch Southern Boundary.
- Merkel & Associates, Inc. 2007b. Comment Letter Regarding Review of Road-Kill Potential on El Camino Real, along Robertson Ranch Southern Boundary.
- Preserve Calavera. 2007. Review of Report on Road-Kill at El Camino Real and Cannon Road.
- Rochester, et al. 2012. Presentation at San Diego Management and Monitoring Program regular monthly meeting.
- Rosenberg, D.K., B.R. Noon, and E.C. Meslow. 1997. "Biological Corridors: Form, Function, and Efficacy." *BioScience* 47:677–687.
- Rosenberg, D.K., B.R. Noon, and E.C. Meslow. 1995. "Towards a Definition of Biological Corridor." In *Integrating People and Wildlife for a Sustainable Future*, ed. Bissonette and Krausman, 436–439. International Wildlife Management Congress.
- San Diego Environmental Mitigation Program Working Group (SD EMPWG). 2011. Connectivity Monitoring Strategic Plan for the San Diego Preserve System.
- South Coast Wildlands (SC Wildlands). 2008. South Coast Linkages: A Wildland Network for the South Coast Ecoregion. Produced in cooperation with partners in the South Coast Missing Linkages Initiative.
- U.S. Geological Survey (USGS). 2011. 2011 San Diego County Linkages Evaluation. Prepared for the San Diego Management and Monitoring Program Meeting.
- Wilcox, B., and D. Murphy. 1985. "Conservation Strategy: The Effects of Fragmentation on Extinction." *American Naturalist* 125:879–887.

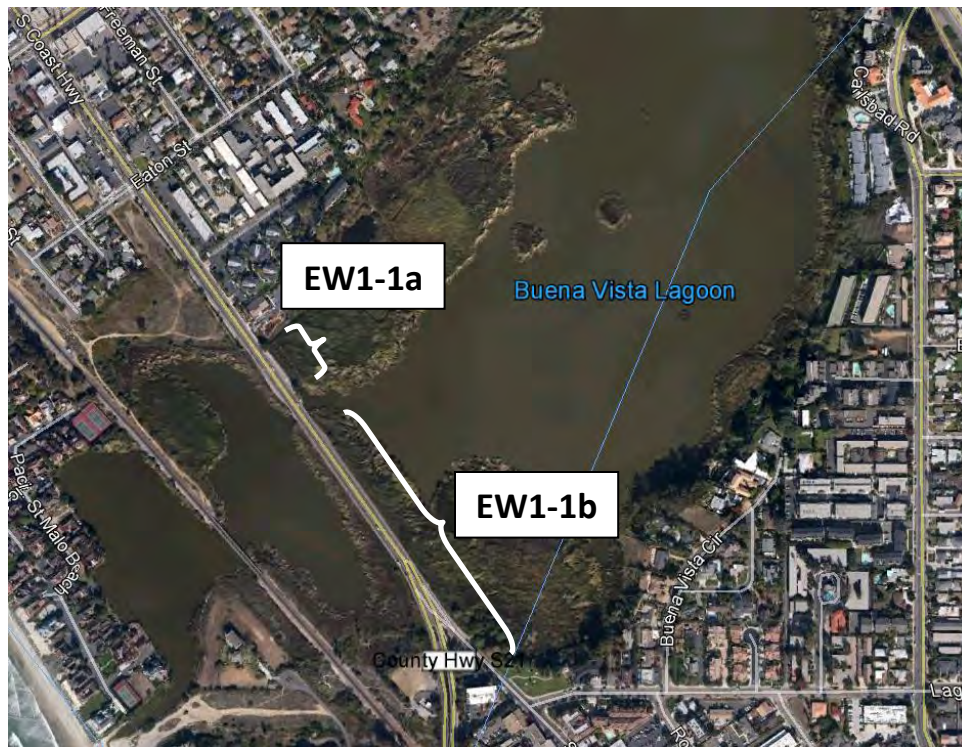
# Appendix A

## Desktop Corridor and Pinchpoint Analysis Screenshots

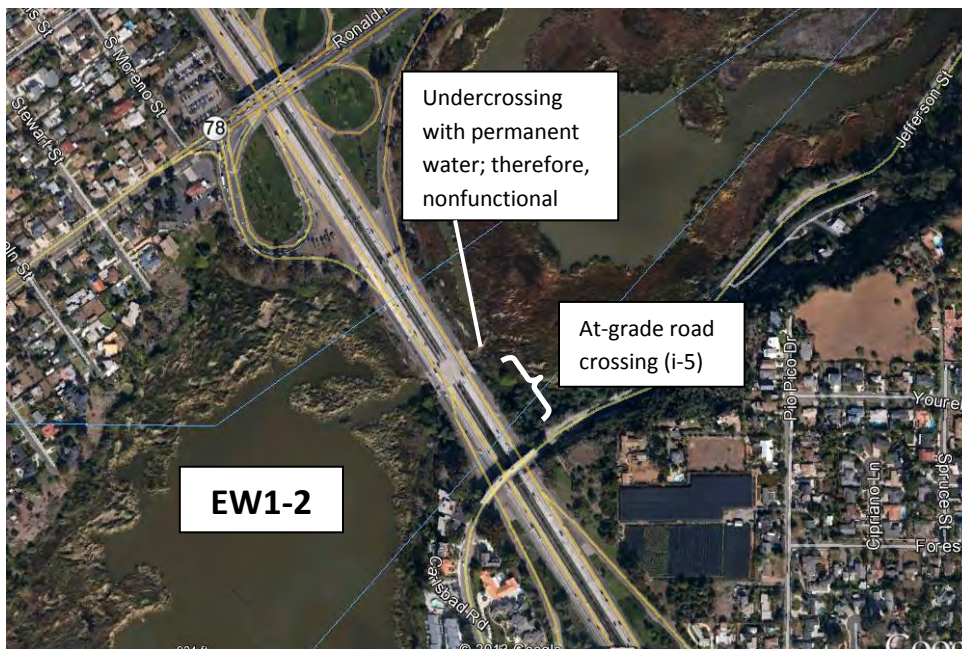
(Note: The designation of corridors CC3 and M7 were exchanged subsequent to the desktop analysis)



## Notes about Potential Site Visit Locations EW1



**EW1-1a-b Rejected.** Buena Vista Lagoon and Pacific Coast Hwy (PCH). EW1 a and 1b are at grade crossings, linking the east and west sides of PCH. These locations will not be assessed because (1) the focus is on pinch points, and (2) there is little habitat west of PCH before hitting the ocean.



**EW1-2 rejected.** Buena Vista Lagoon and I-5. There is one undercrossing, which is permanently filled with water from the lagoon. Therefore this crossing is characterized as “at grade crossing.” Moving between the E and W side of I-5 would be extremely difficult for wildlife due to high traffic volume and width of road (wide, divided highway).





**EW1-3 – High Priority.** Buena Vista Lagoon and Jefferson St. This location was recommended by the MHCP for monitoring. The corridor may be permanently inundated; however, there may be some room to move along the edges of the riparian corridor, although there are steep slopes that are partially armored.







**EW1-4. Priority TBD.** Vista Way and Buena Vista Creek. Undercrossing between Vista Way and mall parking lot, just west of El Camino Real undercrossing.



Facing E



Facing SW





**EW1-5. High Priority.** Buena Vista Creek and El Camino Real. This location was recommended by the MHCP for monitoring.







EW1-5.  
East side  
of EC Real,  
facing E



EW1-5. W  
of EC Real,  
S of BV  
Creek;  
facing NE.

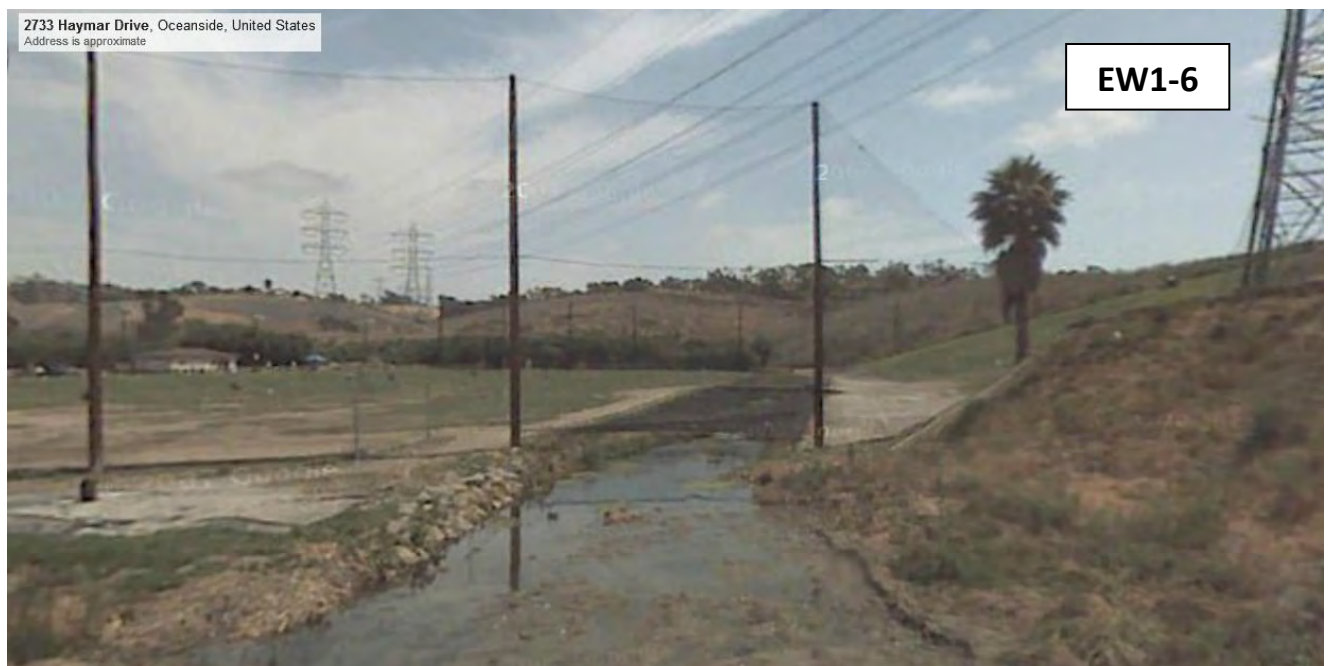


EW1-5. W  
of EC Real,  
N or BV  
Creek  
facing SE





EW1-6. Haymar Drive and Buena Vista Creek. Just north of golf driving range between Summit preserve on west and BVCER on the east. Note denuded vegetation south of this undercrossing within driving range. Also, the boundaries of the driving range has been fenced with netting which was installed to prevent flyaway golf balls, cutting off much of the potential movement area.





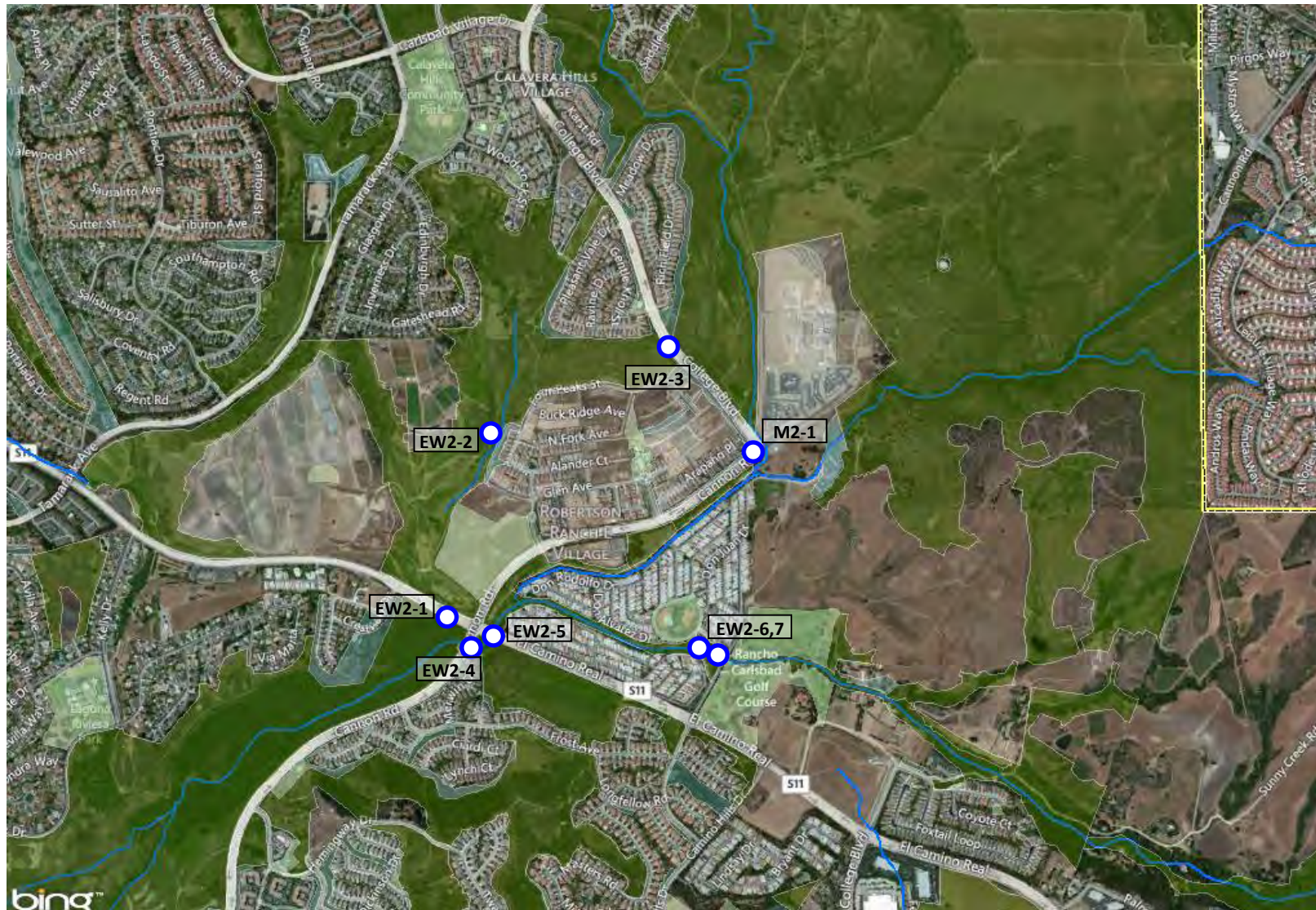


There are no more obvious obstructions to EW movement along EW1 linkage. Note that Quarry Creek reclamation project is underway, which will result in the restoration of a portion of Buena Vista Creek and the preservation of riparian and wetland habitat. In addition, unpreserved portions of Quarry Creek will be developed into fairly dense residential development. **EW1-7 might be an interesting area to monitor before and after development.**





## Notes about Potential Site Visit Locations EW2 and M2



Overview of EW2 pinch points showing an overlay of Carlsbad open space (all types).





**EW2-1** – although not visible in the aerials, this stretch has several culverts. CDFW, who owns the southern portion, is planning to dredge this channel to allow for more water movement. Northern side is undergoing restoration and will be managed by CNLM when finished.

**EW2-1. High Priority**









**EW2-2** Trail west of Alander Ct. Only requires a quick check to see if there is a fence obstructing wildlife movement.



**EW2-3, High priority.** College Blvd. and Robertson Ranch East Preserve. Undercrossing. Fencing on north side is 3-wire and will allow for wildlife to move up and over the road. A portion of the southern side is fenced with chainlink. Animals



may be about to get around the fence on the north side of this chainlink. Based on aerial, it looks like there might be animal trails emanating from culvert. [MS – both sides have chain link]



**EW2-4 and EW2-5, High Priority.** Agua Hedionda Creek and Cannon/AHC and El Camino Real. Movement along riparian area from AH Ecological Reserve (west side of Cannon/El Camino Real intersection) along creek to the east.





This riparian corridor is highly constrained east of this intersection – significantly narrowed and surrounded by dense residential development – and is not protected open space land. Wildlife movement in this area within upland habitat is also important, but this will be discussed within Linkage CC1 notes.



**EW2-4** looking at W side of Cannon Road, facing NW



**EW2-4** looking at E side of Cannon Road, facing E



**EW2-5** on El Camino Real facing WSW, South side of ECR.





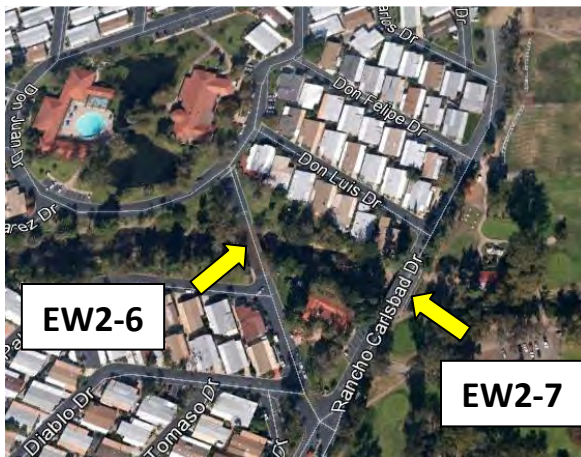
Is the AHER area too dense for animal movement? Do they move along the northern periphery?



M2A and M2B could be part of EW2 linkage (MS)



**M2-1.** No obvious obstructions along M2b drainage; however, it becomes very narrow and there may be a cinderblock fence along one or both sides along a portion or the entire length. It doesn't appear that there is much opportunity for N-S movement along M2a through M2-1, although City storm pipe layer shows a culvert. This area isn't considered of major importance for wildlife movement, but it is a high profile area due to concerns (Preserve Calavera) about the school's affect on wildlife. Note that the area between EW2b and M2b will be developed as part of Rancho Milagro project (confirm).



**EW2-6, EW2-7.** There are 2 undercrossings, EW2-6 at an western spur of Rancho Carlsbad Drive and EW2-7 at eastern spur of Ranch Carlsbad Dr. Needs further investigation to see if movement is possible. This is a gated area and may not allow access. There are a few small pedestrian bridges across the drainage east of Rancho Carlsbad Drive; these don't appear to obstruct movement.



The drainage narrows and is surrounded by development (appears to be equestrian facilities).

**EW2-8.** Rancho Carlsbad Golf Course and equestrian area to the east. The entire golf course needs to be walked along the riparian drainage to look for signs of obstructions to movement, such as fences. Like EW3-3, this area has a lot of small bridges across the drainage, which probably does not impede movement, but should be confirmed. There are also areas that are narrow with very dense vegetation surrounded by development. The area probably has access control during the night, so may not be a problem to wildlife unless there are wildlife proof fences. Note that the riparian area is protected (classified as open space but not part of HMP). Photos:





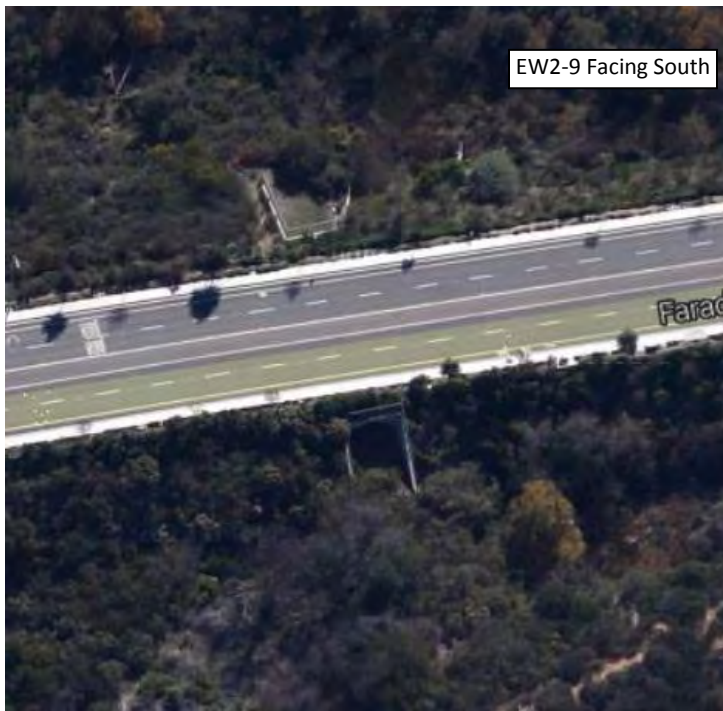


This linkage turns into Sunny Creek. Although hard to see, there are houses and dirt roads under the canopy. As such, there could be fences and other obstructions to movement.





**EW2-9. High Priority.** Fencing around the tops of the box culverts, but otherwise the area is unfenced.









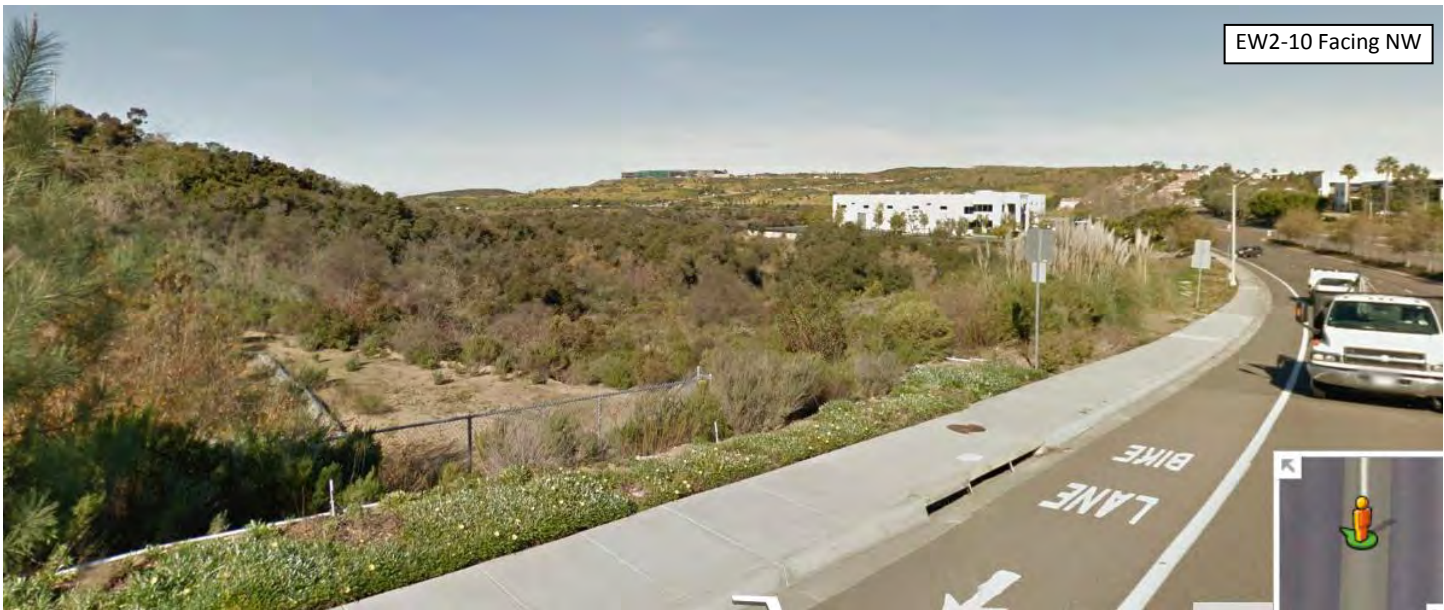


**EW2-10. High Priority.** Does not appear to be any fencing.





Tr



EW2-10 Facing NW





## Notes about Potential Site Visit Locations EW3



**EW3-1, High Priority.** Batiquitos Lagoon/San Marcos Creek and El Camino Real. MHCP-recommended monitoring location. Undercrossing may be completely inundated at times. Channelized E of ECR, but a narrow strip of upland habitat along the creek.







**EW3-1.** East side of El Camino Real, facing E



**EW3-1.** West side of El Camino Real, facing NW



**EW3-2.** 1-lane bridge connecting La Costa Country Club to parking area to the south.





**EW3-3a-3a-e.** Narrow bridges along San Marcos Creek for golf cart access. These may not be great impediments to movement since animals can easily move along golf course surrounding the creek. Animals can move at night when the golf course is closed. There does not appear to be any fencing or other obstructions along the creek, but this should be confirmed. Private property; therefore, access might not be possible.



**EW3-3a-3f-k.** Narrow bridges along San Marcos Creek for golf cart access.



EW3-3f-i



EW3-3j-k



EW3-4



**EW3-4.** Unnamed road crossing San Marcos Creek; may be abandoned or used for maintenance. Does not appear to obstruct movement (at grade crossing), but this should be confirmed in the field if possible.

EW3-5



**EW3-5. High Priority;** MHCP-recommended monitoring location. San Marcos Creek and Ranch Santa Fe Road.



2400 Rancho Santa Fe Road, Carlsbad, United States  
Address is approximate



**EW3-5.** W side of Rancho Santa Fe Rd, facing WSW



**EW3-5.** E side of Rancho Santa Fe Rd, facing south from La Costa Meadows Dr.





**EW3-6. High Priority;** MHCP-recommended monitoring location. Rancho Santa Fe Road and Rancho La Costa Preserve. E-W movement does not follow a drainage or creek.







**EW3-6.**  
Culvert



**EW3-6.** W side of Rancho  
Santa Fe Rd; Culvert



**EW3-6.** E side of Rancho  
Santa Fe Rd





**EW3-7. High Priority;** MHCP-recommended monitoring location. Encinitas Creek and La Costa Avenue, near intersection with El Camino Real. No obvious fencing in this area







**EW3-7.** S side La  
Costa Ave. facing SW



**EW3-7.** N side La  
Costa Ave. facing NW



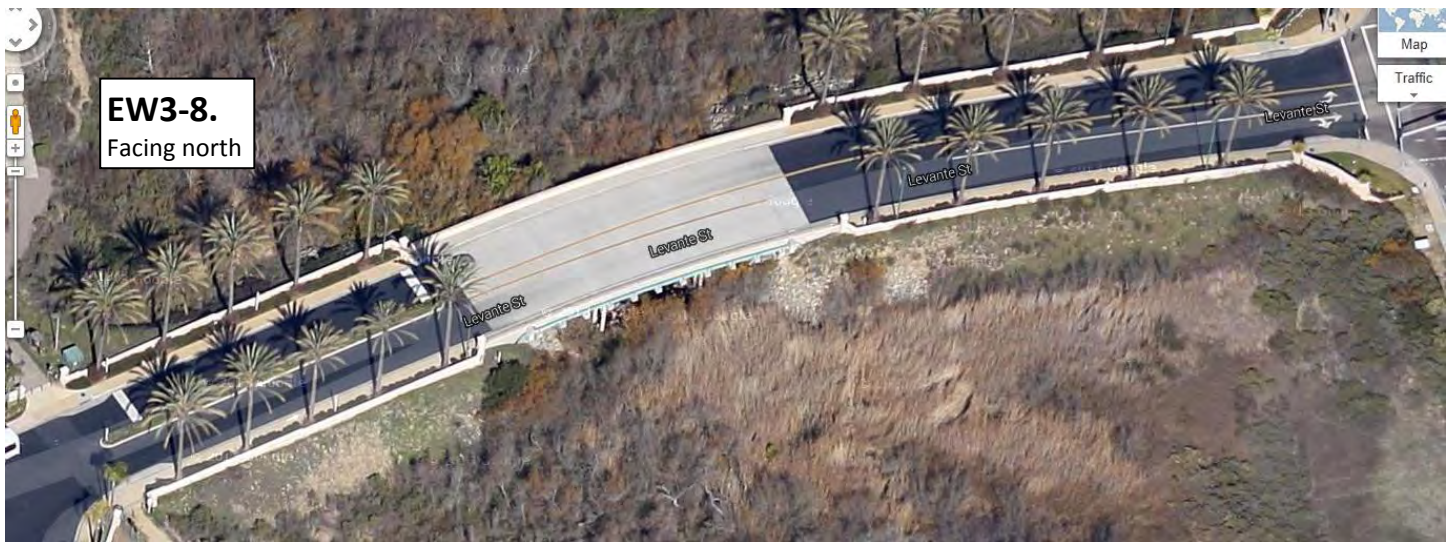


Overview of EW3-8 EW3-11.





**EW3-8.** Encinitas Creek and Levante Street.







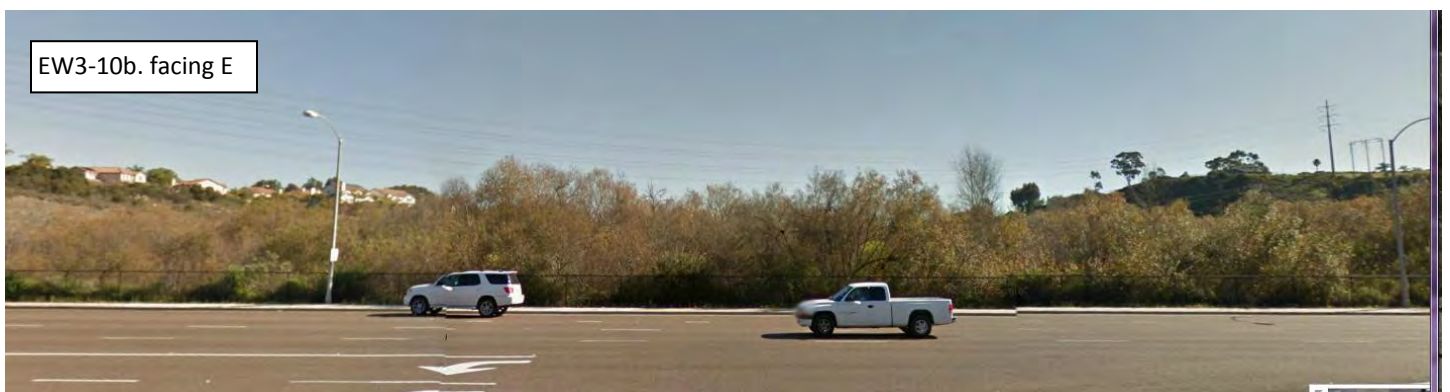
**EW3-9.** Encinitas Creek and Calle Barcelona.







**EW3-10a and b.** Encinitas Creek and Leucadia Blvd (EW3-10a; N-S movement) and Encinitas Creek and El Camino Real (EW3-10b; E-W movement).





EW3-10b. facing NW



**EW3-11.** Encinitas Creek and Amargosa Drive.





Overview of EW3-12a-c. Encinitas Creek and equestrian facilities (?), E of Amargosa, S of Olivenhain Rd. Not sure if wildlife movement through this area is possible. May not be access to this area.







EW3-13. High Priority. MHCP-recommended monitoring location.

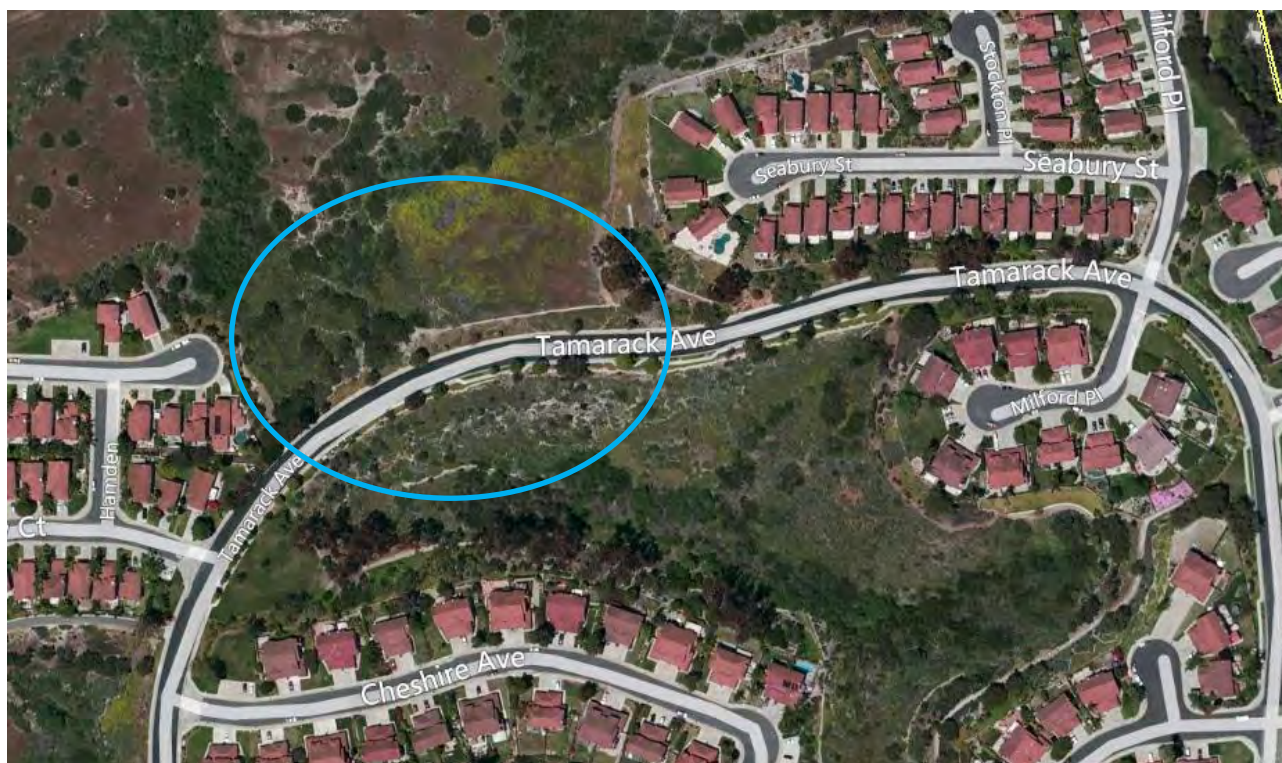
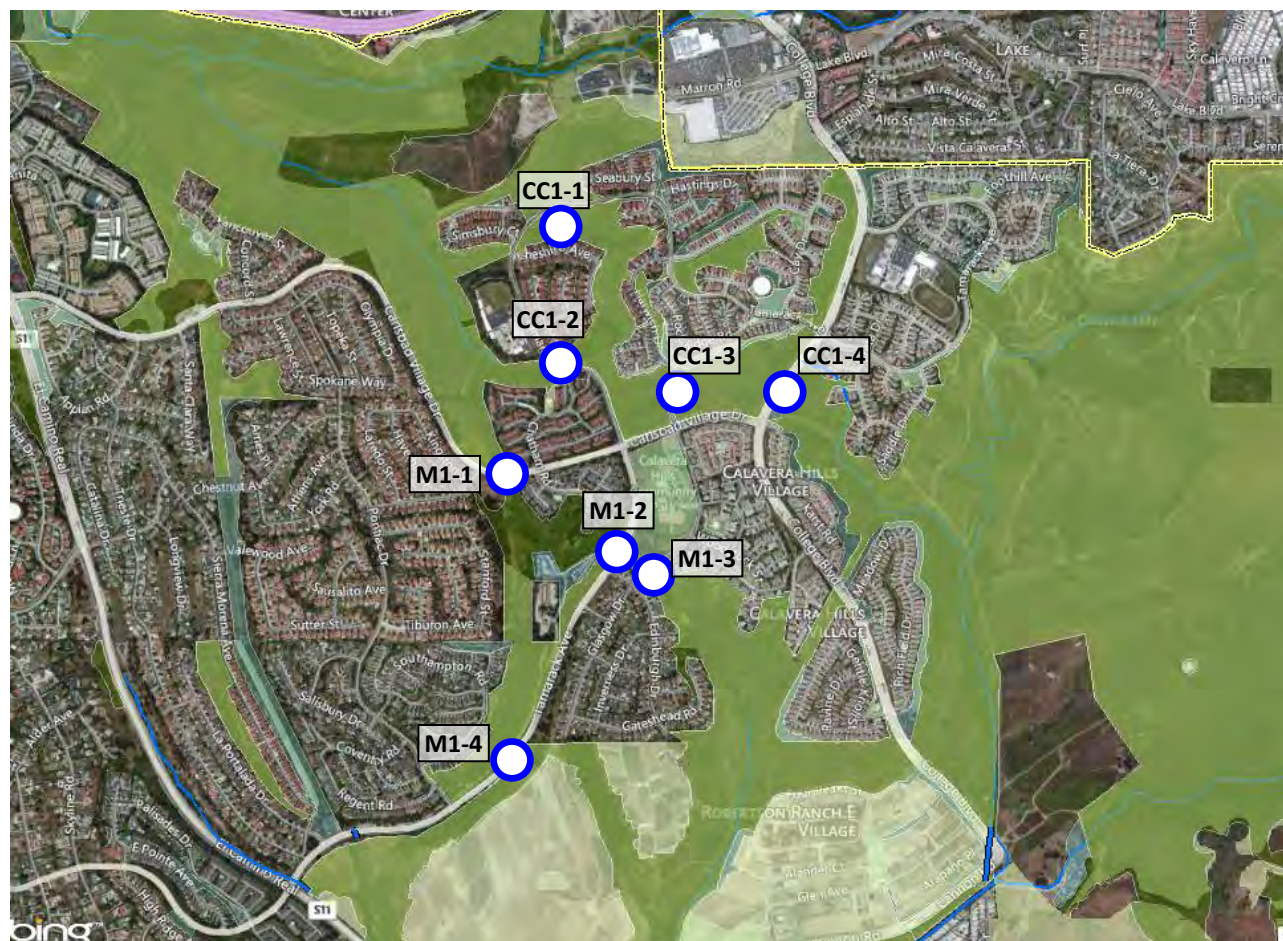








## Notes about Potential Site Visit Locations – CC1 Linkage



**CC1-1.**  
Tamarack Ave near Cheshire Ave. There does not appear to be a culvert here. At grade crossing.

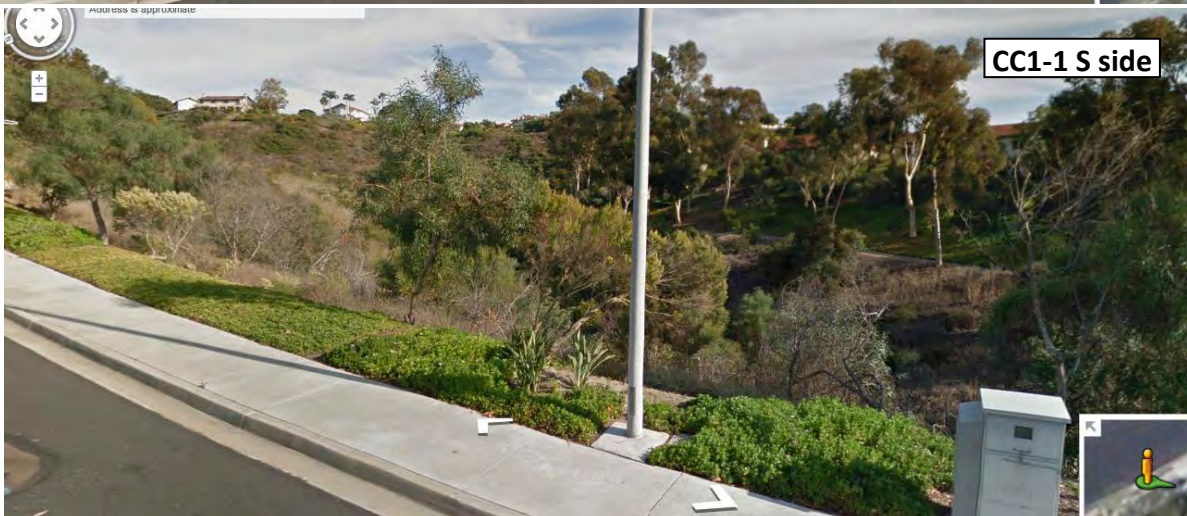




**CC1-1 oblique  
view facing E**



**CC1-1 N side**



**CC1-1 S side**





**CC1-2.** Tamarack Ave near Chatham Rd. Oblique view facing N. At grade crossing?

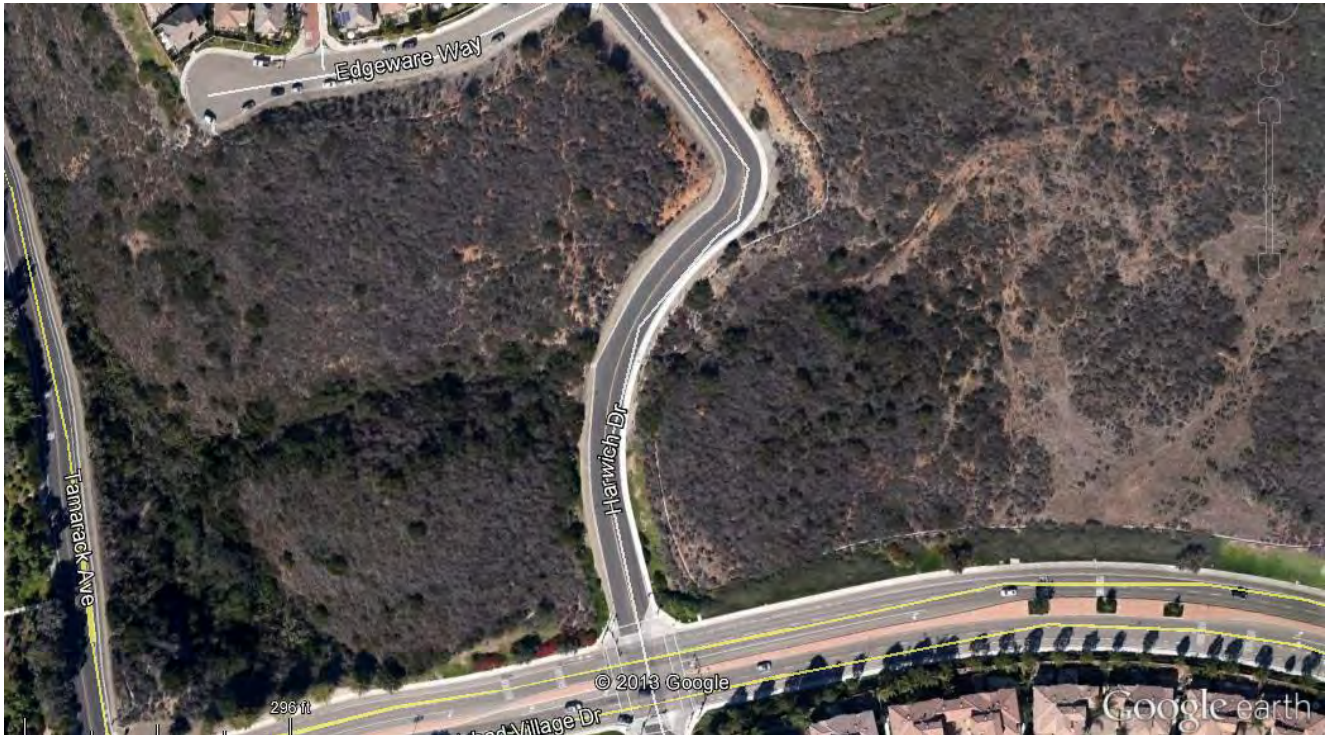


CC1-2 -North Side  
Tamarack Ave

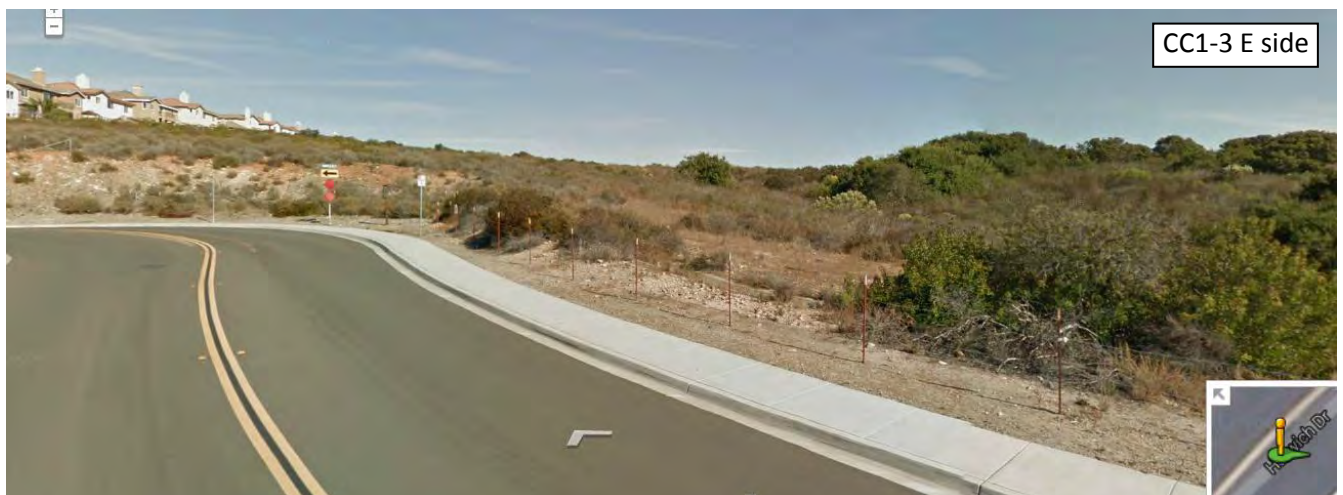
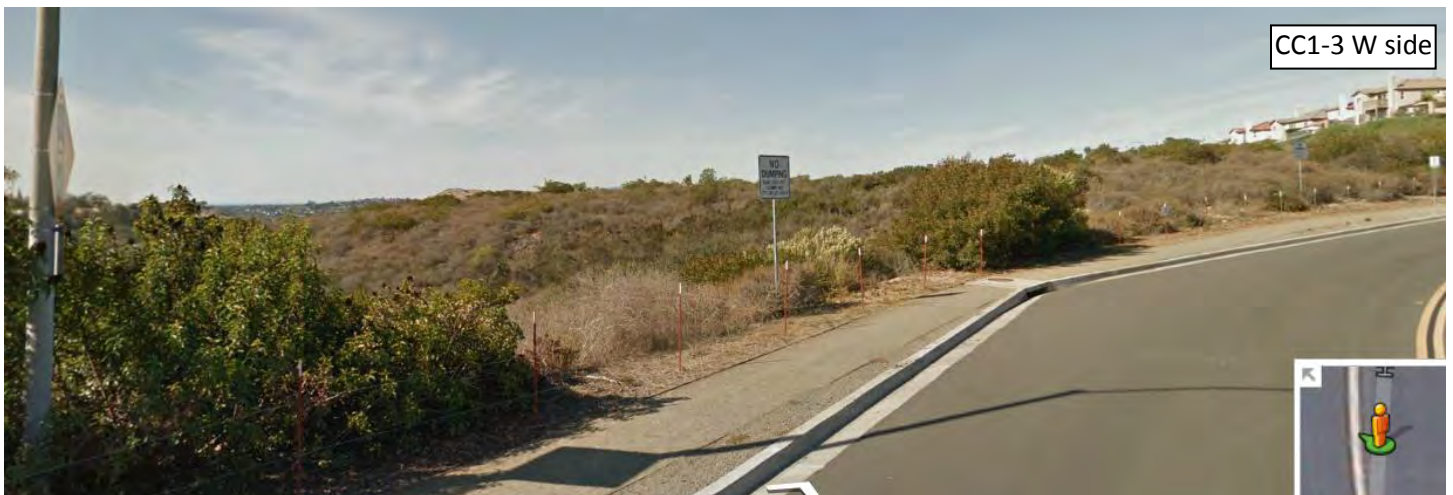


CC1-2 - Chatham Rd.,  
facing NW, near  
Tamarack





CC1-3. Harwich Dr. – At-grade crossing





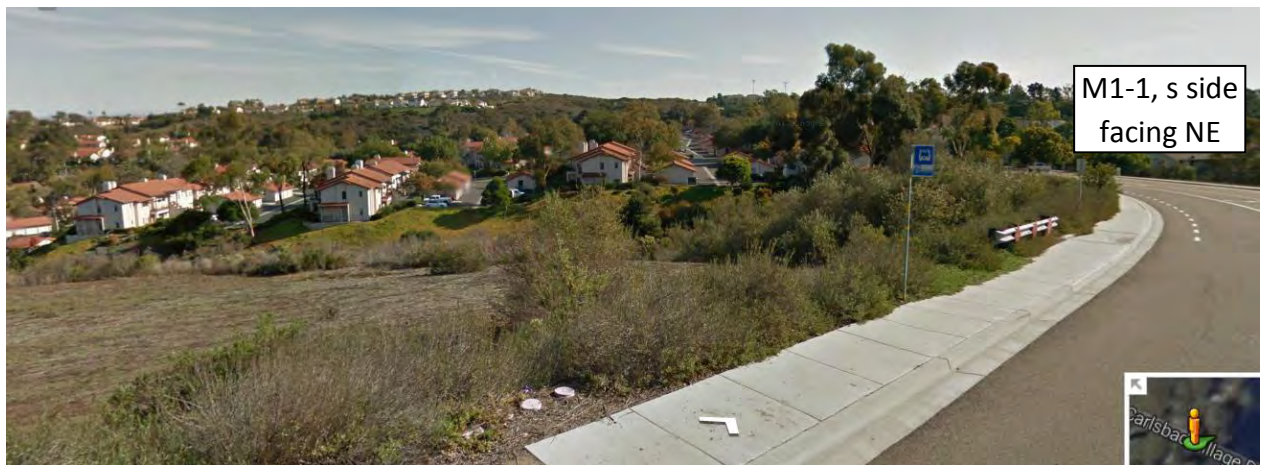


**CC1-4** College Blvd. near Carlsbad Village Drive. Appears to be an at-grade crossing, but there may be a culvert/drainage



**M1-1.** Carlsbad Village Drive near Kingston St. Culvert on N side. Where does it come out on S side?









M1-2 and M1-2. Tamarak/Edinburgh Dr. and Glasgow Dr./Edinburgh Dr. At grade crossings?



M1-2. E side facing SE





M1-3. Glasgow Dr., W side facing NE



M1-3. Glasgow Dr., E side facing E





M1-4. Tamarack Ave near Gateshead R. Oblique view facing W. Appears to be no culverts or fencing along Tamarack Ave. Can animals travel across agricultural areas?



M1-4. Facing SE





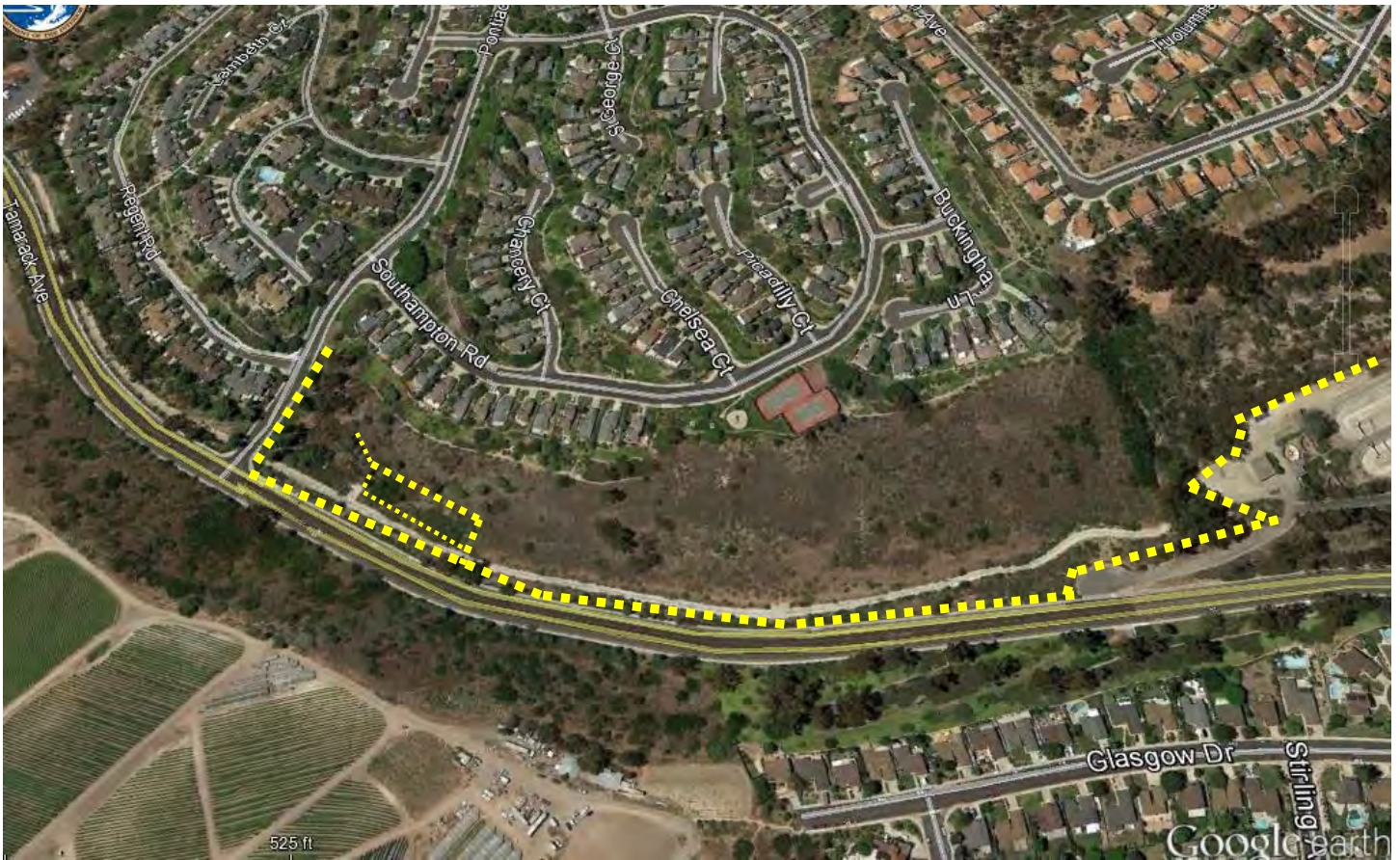
M1-4. End of Glasgow Rd. Will this be extended? If so, when and for how long?



M1-4. Along W side of Tamarack Ave showing fencing (above). Photo below shows fencing around Calavera Hills Storage development. Fence seems fairly short – short enough for a coyote/bobcat to jump over?







M1-4. Tamarack Ave showing chain-link fence in yellow, facing west. This fence may prevent movement along this linkage.

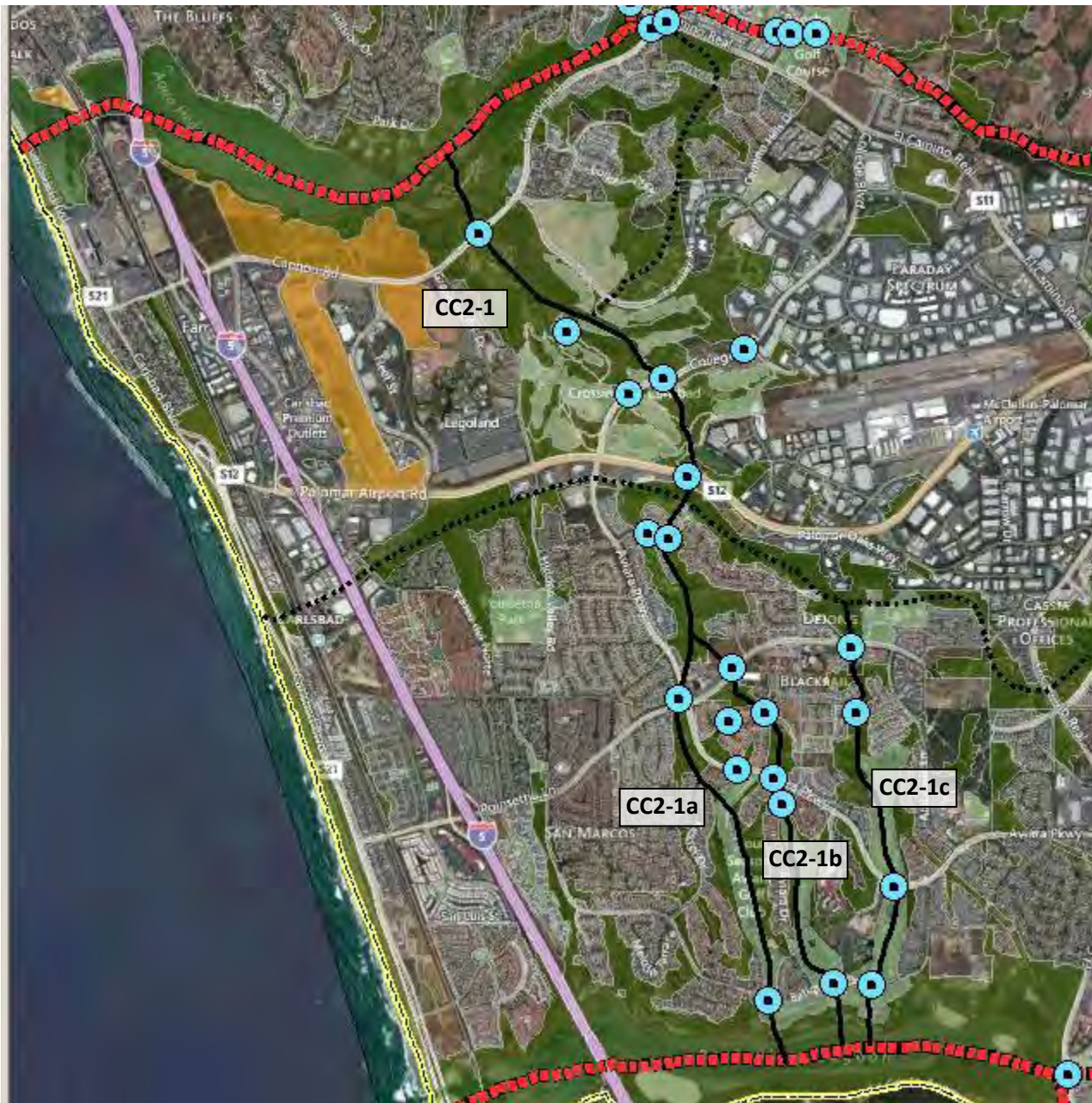


M1-4. Along Tamarack Ave showing low chain-link fence.



## Notes about Potential Site Visit Locations – CC2 Linkage

Overview of CC2, including a, b, and c



CC2.



CC2 a and b. Movement is likely to occur along the yellow dotted line based on topography.







CC2-1. Cannon Road, near Faraday Ave. Most likely, movement is through bridge. 2012 and 2010 maps







CC2-2. The Crossings Golf Course. Riparian corridor and upland habitat interspersed with golf greens. There are a couple of bridges the cross the riparian corridor (photos below). Faraday Ave is fenced with chainlink. MS: CC2 Faraday movement along Macario. Likely movement is within Marcario Creek, but it's dense, so I would think animals move along the SDGE roads/golf course fairways within the GC.



CC2-2- bridge for golf cart traffic. Not likely to be impediment to movement.





CC2-2 along Faraday (The Crossings Golf Course), showing riparian corridor and surrounding upland habitat.



CC2-2. Far eastern end (facing E) of The Crossings Golf Course. Does not appear to be any obstructions to movement.





CC2-3a-c. College Blvd near Palomar Point Way. Snapshot is facing NW. Wildlife may be funneled to CC2-3c due to topography. Or animals may move across the greens or within upland habitat through CC2-3a or CC2-3b. There may be no culverts along College here. No fencing.

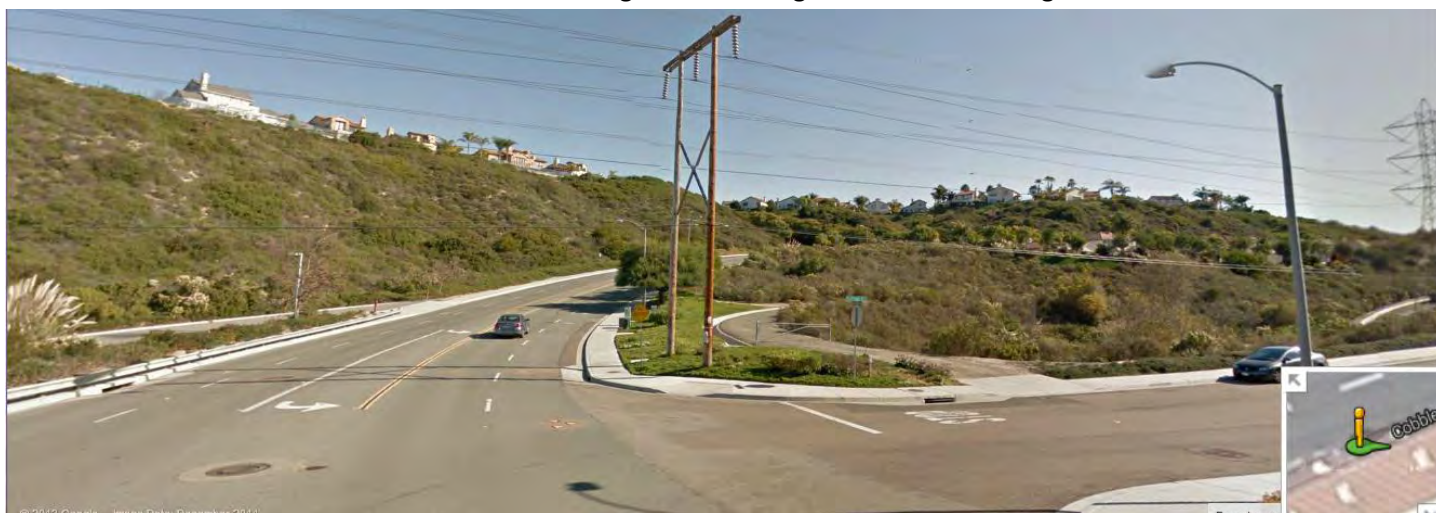


CC2-4. Palomar Airport Rd near West Oaks Way. Is there a culvert here?





CC2-5. Cobblestone Drive. Green dotted line = wrought iron fencing. Unclear how far it goes.



CC2-5a at intersection of Cobblestone and Plum Tree Rd, facing E, Emerald Pointe Preserve on the left. There doesn't appear to be fencing that would block wildlife movement at this location.

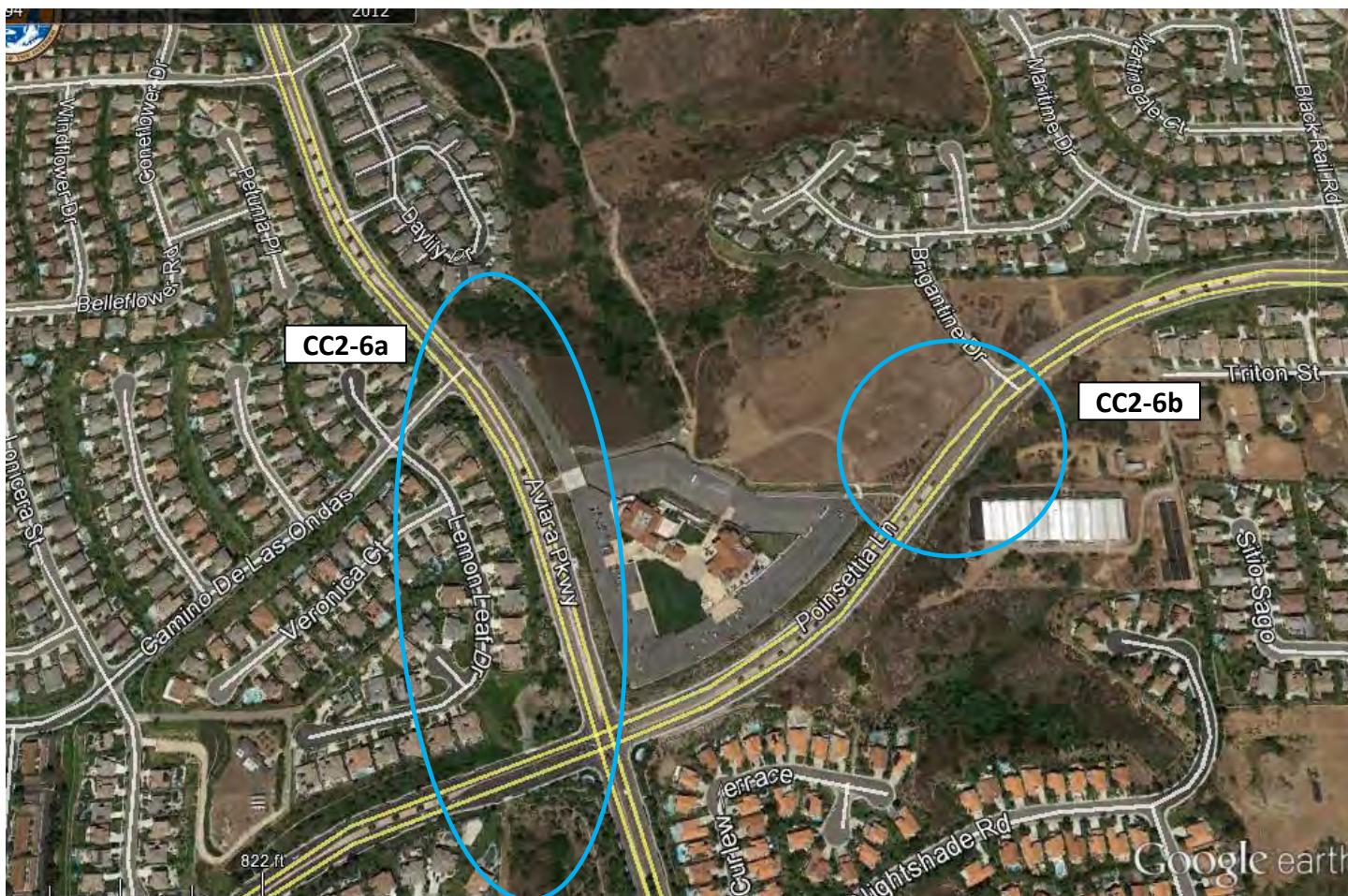




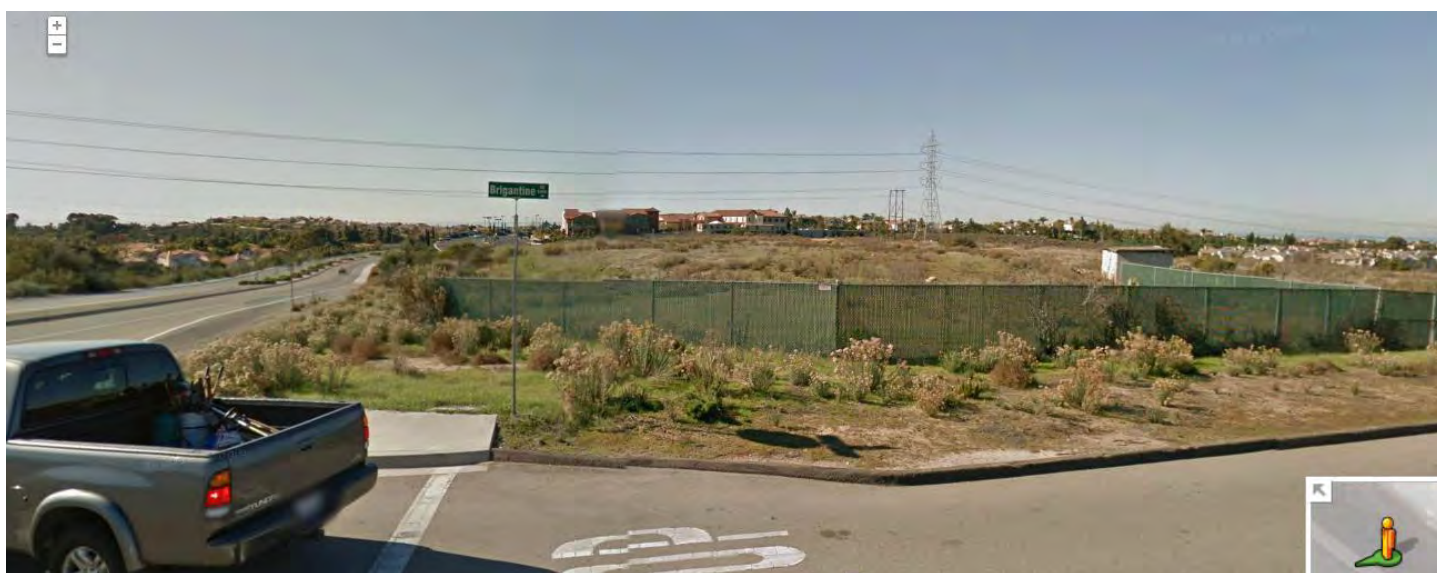
CC2-5b. From Willow Place, facing toward Emerald Pointe Preserve (NE). Fencing along east side of Cobblestone.







CC2-6a and b. Aviara Parkway and Poinsettia Lane. Movement is from north to south of Poinsettia Lane. Too many constraints to movement through CC2-6a? CC2-6b appears to be an at-grade crossing; lots of traffic along this road. Who owns the mowed property NE of the Church? Might this ever be developed?



CC2-6b, facing W on corner of Brigantine and Poinsettia Lane.





CC2-7a, b. Nightshade Rd. At-grade Crossings. No fencing.

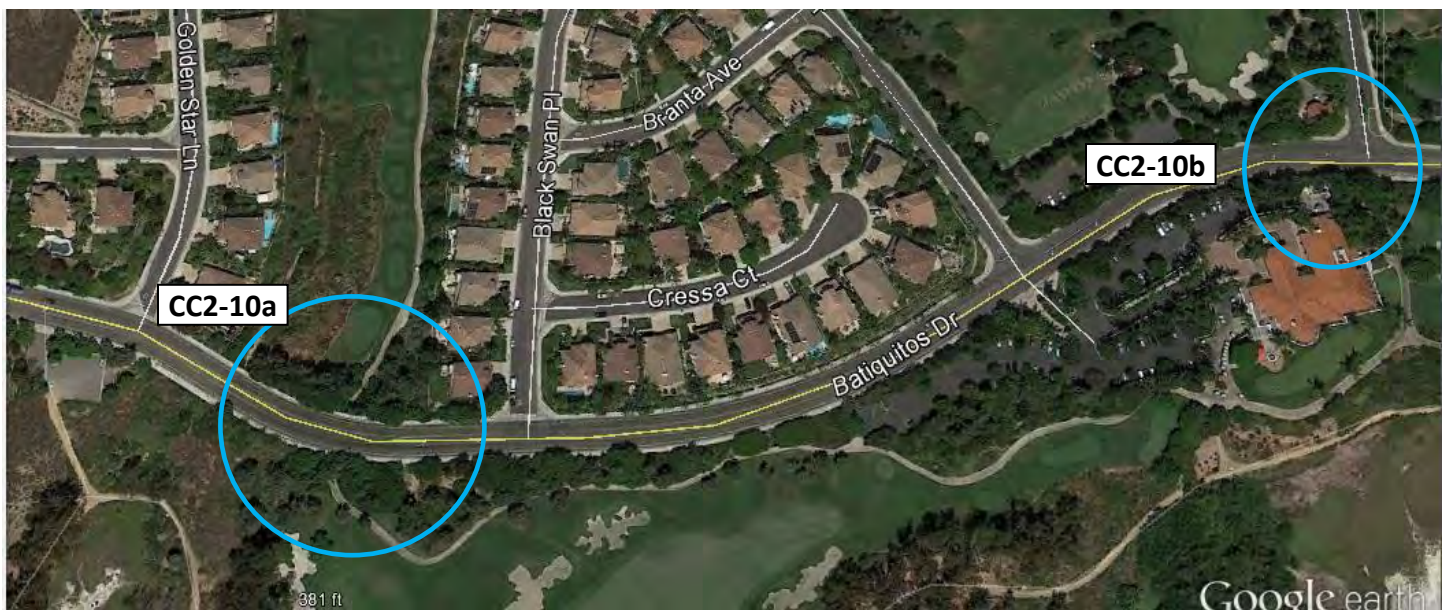


CC2-8a, b. Aviara Parkway at Aviara Golf Course. At-grade Crossings. No fencing on northern side of Aviara Parkway. Concrete wall (white dotted line) and wrought Iron fencing (green dotted line) on south side. No movement across Aviara possible?





CC2-9-golf cart undercrossing under Black Rail Ct. Chainlink (yellow dotted line in previous aerial snapshot) along Black Rail Rd.



CC2-10a and b. Batiquitos Road at Aviara Golf Course. These are both golf cart undercrossings, which have lights, and hard bottoms.



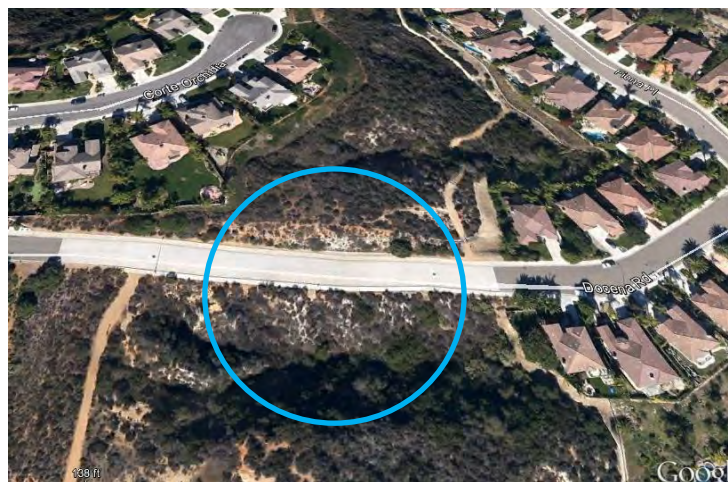




## Overview of Link CC2c

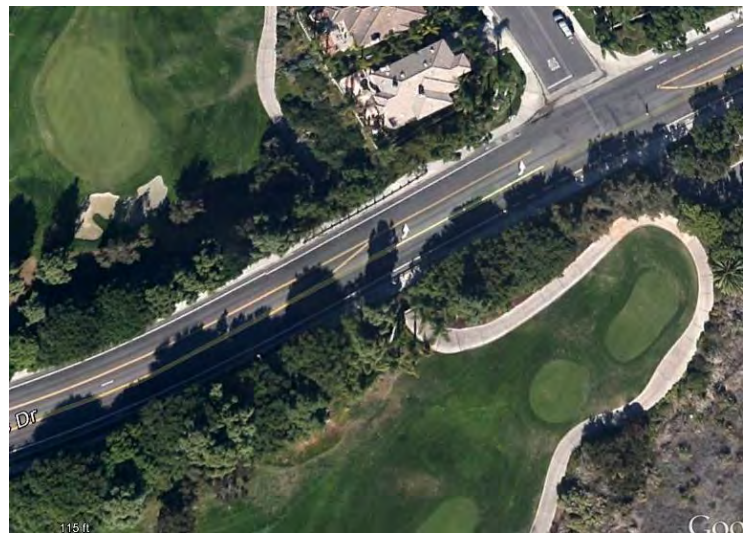
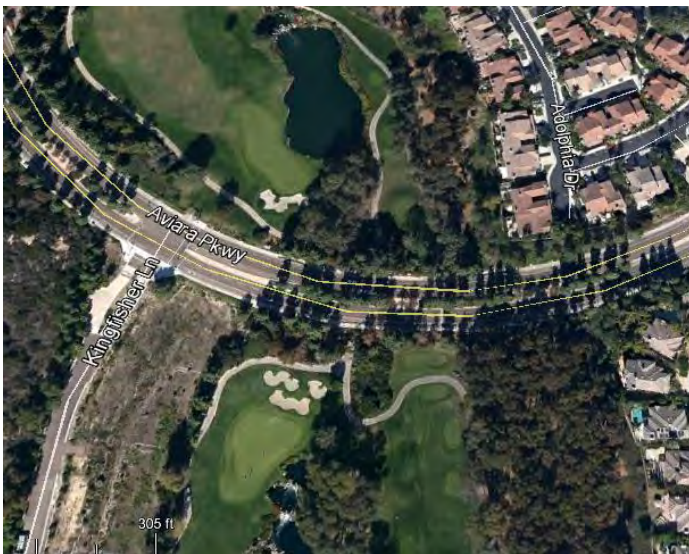


CC2-11. Poinsettia Lane at Fisherman Dr. No culvert? Open field to the south is privately owned and may block access if it is developed in the future.



CC2-12. Docena Rd. At-grade road crossing. Fairly low, residential traffic.









**CC2-13.** Has narrow raised sidewalk, lights



**CC2-14 S side.**  
Lights but no raised sidewalk



**CC2-14 N side.**



## Notes about Potential Site Visit Locations – CC3 Linkage

CC3 Linkage overview.



CC3-2. Palomar Airport Rd., near El Camino Real. No undercrossing? Movement highly constrained here.



CC3-1. Faraday near Orion Rd.  
Box culverts







CC3-1 South side of Faraday Ave



CC3-3. Gateway Rd. Not sure what this area is, but future development could restrict animal movement.

CC3-4. Town Garden Rd. Steep hill south of road. At-grade crossing.





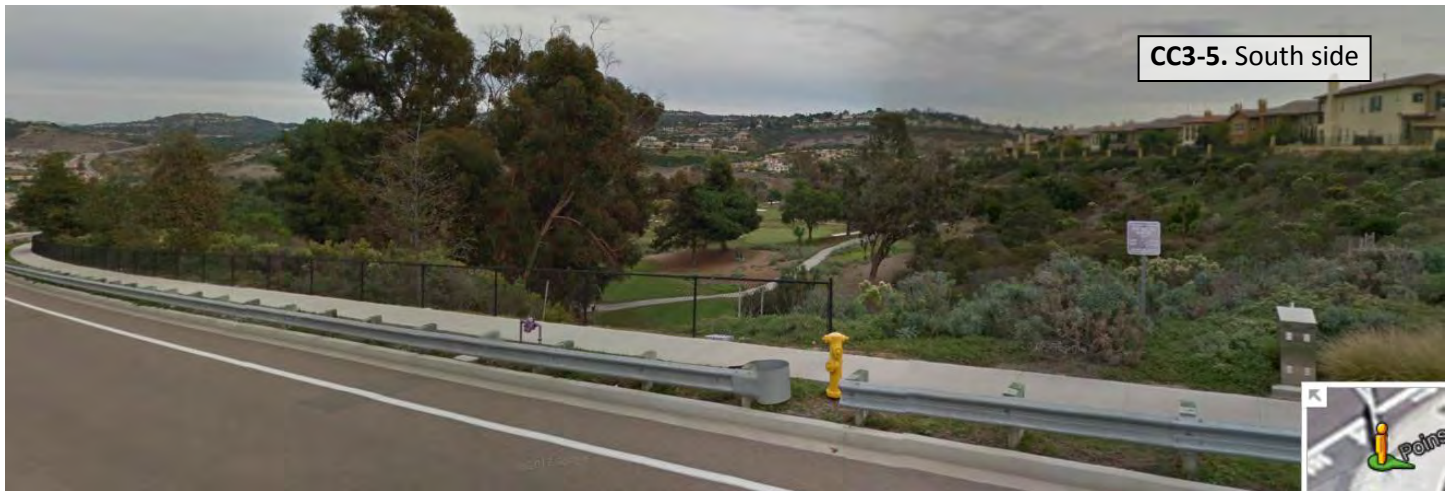
Overview of CC3-3 and CC3-4.



Photos below show CC3, facing W (on Cambell Place), and CC4, facing south, showing drainage structure.













## Notes about Potential Site Visit Locations – M Linkages



Overview of M3 and M4. Movement between HMP Core Area 3 and Core Area 5 (Link C). No obvious obstructions. Need to check on location of wildlife-proof fencing.



M5 Linkage.



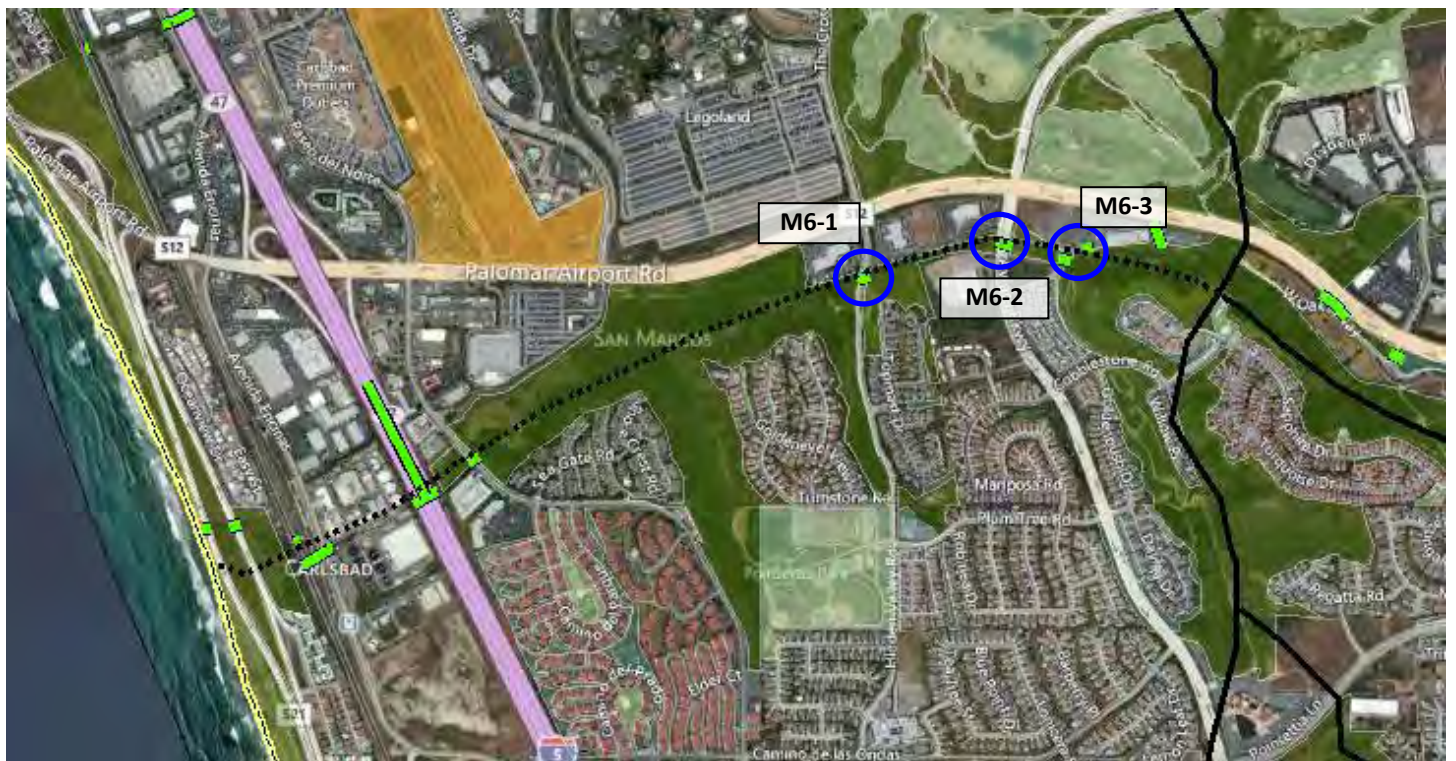


M5-1. Frost Avenue near Longfellow Rd. City GIS data shows culvert here.



M5-2a – Faraday Ave. Culvert in this location. M5-2b – at-grade crossing? Steep slope on W side.





Overview of M6a.





Overview of M7-9. M6-4 Cassia Rd.; M6-5 El Camino Real near Cassia R. M7-1. Alicante Rd; M7-2 El Fuerte St.; M7-3 Melrose Dr.; M7-4 Palomar Airport Rd. M8-1 Goldstone Rd.; M8-2 Alicante Rd.; M8-3 Alga Rd; M8-4 El Fuerte St. near Babilonia St. M9 – no obvious barriers.

















# Appendix B

## Corridor Inventory

## Descriptions





### **3.2.1 East/West Corridors**

The East/West corridors were defined based upon the MHCP objective to maintain connectivity between the lagoons and inland areas outside of Carlsbad. They are generally characterized by larger blocks of open space habitat, with opportunity for unrestricted wildlife movement, and narrow natural drainages outside of the HMP preserve. The habitat within the East/West corridors is generally sufficient to support large-scale species movements (e.g., seasonal migrations, dispersals, etc.) and well as higher-order life stage behaviors (e.g., mate selection, breeding, etc.). As shown in Figure D, there are three East/West corridors.

#### **East/West 1**

East/West 1 begins at Buena Vista Lagoon and generally parallels State Route 78 (SR-78) and Buena Vista Creek through the northern portion of the city, terminating at the city boundary just west of College Boulevard. It exists within and between FPA Core Areas #1 and #2 and traverses the Buena Vista Lagoon Ecological Reserve, Buena Vista Creek Ecological Reserve, and future Quarry Creek preserve. It also crosses an area outside of the HMP FPA and preserve system from Jefferson Street to east of El Camino Real. Since it follows a major creek system draining to the lagoon, the East/West 1 corridor continues beyond the city boundary to the east; however only that portion within the city was included in this study.

East/West 1 is generally more open in the vicinity of the Buena Vista Lagoon, and becomes more restricted as it passes the Westfield Plaza Camino Real shopping mall. After crossing El Camino Real and continuing a short distance, the corridor enters the Buena Vista Creek Ecological Reserve and future Quarry Creek preserve. Currently, the Quarry Creek site is undergoing active wetland restoration within the corridor and development north and south of the corridor; there will be a future road crossing across the creek upon completion of the development. Habitat within East/West 1 tends to be dominated by wetland/riparian within Buena Vista Creek, and a mix of coastal sage scrub, non-native grassland, and ornamental communities outside of the riparian corridor. Species detected within East/West 1 included raccoon (*Procyon lotor*).

Seven potential pinchpoints were identified for analysis within East/West 1. Due to permanent inundation and surface constraints, such as Interstate 5, EW1-1a, EW1-1b, and EW1-2 were not visited during field reconnaissance. Additionally, EW1-7 was not surveyed because it is an active restoration and construction site.

Results of the field reconnaissance found that wildlife connectivity within the corridor is severely constrained at several points due to standing water and bridge abutments. Heavy human presence and existing infrastructure (e.g., sewer pipes, fencing) may further deter use of the corridor, especially by large mammals. All surveyed points were considered constrained to some degree and large scale movement within East/West 1 by large mammals would likely require significant at-grade crossing of potential pinchpoints. Possible Task 2 monitoring could include cameras at EW1-3, EW 1-4, and/or EW 1-5 to confirm suspected barriers to movement and tracking at EW1-6 to identify species using the corridor in this area.

## East/West 2

East/West 2 begins at Agua Hedionda Lagoon and extends eastward to the intersection of El Camino Real and Cannon Road. The corridor then splits into East/West 2a and East/West 2b, with East/West 2a continuing northeastward past Lake Calavera to the northeastern city boundary and East/West 2b continuing southeastward along Agua Hedionda Creek and La Mirada Creek to the eastern city boundary.

The western portion of East/West 2 lies completely within FPA Core Area #4 and traverses the Agua Hedionda Lagoon Ecological Reserve. East/West 2a travels through FPA Link B and Core Area #3 and is located within the Calavera Hills/Robertson Ranch preserve, Carlsbad Highlands Ecological Reserve, and the city's Lake Calavera preserve. East/West 2b begins in FPA Link B and travels through areas outside of the FPA before reaching Core Area #5. The corridor crosses the future Rancho Milagro preserve, several Zone 15 HMP Standards Areas, the Mandana HMP Proposed Hardline, and the Carlsbad Oaks North preserve. East/West 2a and 2b both extend beyond the eastern city boundary and, as with East/West 1, only those portions within the city were included in the study.

Habitat within East/West 2 tends to be dominated by wetland/riparian west of the intersection of El Camino Real and Cannon Road, and is dominated by a mix of coastal sage scrub and coast live oak woodland within East/West 2a and East/West 2b. Species detected within East/West 2 included raccoon and coyote (*Canis latrans*).

Thirteen potential pinchpoints were identified for analysis within East/West 2; three in East/West 2a and ten in East/West 2b. Results of the field reconnaissance found that potential pinchpoints within the corridors offer minimal resistance to wildlife movement overall. Habitat remains largely open within the corridor between pinchpoints, further facilitating wildlife movement. The only surveyed points considered constrained were those in the vicinity of the intersection of El Camino Real and Cannon Road, specifically EW2-1, EW2-4, and EW2-5a. Large scale movement within East/West 2 is feasible; however the area at the El Camino Real and Cannon Road intersection may restrict movement between habitat east and west of El Camino Real.

There has already been some wildlife movement monitoring within the East/West 2 corridor. EW 2-3 was previously studied for a brief 10-day period by CNLM using wildlife cameras. Coyote, skunk, squirrel, opossum, rabbit and roadrunner were detected in many photographs during that short period. Also, CNLM tracked wildlife movement in EW2-9 for several years using wildlife cameras and has detected coyote, raccoon, mule deer (*Odocoileus hemionus*), bobcat (*Lynx rufus*), squirrel (*Spermophilus*), skunk (*Mephitidae*) and rabbit (*Leporidae*).

Regarding possible Task 2 monitoring, no further camera work is likely needed at EW 2-3 and EW 2-9 because the previous CNLM camera surveys proved that many different species successfully use these undercrossings. EW2-1 is a permanently wet undercrossing and not recommended for future monitoring. Due to the lack of restrictions, EW2-2 in the Calavera Hills/Robertson Ranch preserve, and EW2-6, EW2-7, EW2-8a, and EW2-8b in and around the Rancho Carlsbad Golf Club, may be suitable for camera and/or tracking to document the species using this portion of the corridors, provided resources are available. Pinchpoints EW2-4, EW2-5a, and EW2-10 could provide opportunities for camera and/or tracking monitoring due to their importance and dispersed locations along the corridor.



### East/West 3

East/West 3 begins at Batiquitos Lagoon. Just west of El Camino Real, north of La Costa Avenue, East/West 3c splits off from the primary East/West 3 corridor and follows Encinitas Creek to the south and east, past La Costa Canyon High School to the eastern city boundary. After its separation from East/West 3c, East/West 3 follows San Marcos Creek eastward through the La Costa Resort & Spa property. Just west of Corte Panorama in the La Costa Oaks North residential development the corridor splits again, with East/West 3a continuing northeast along San Marcos Creek to the eastern city boundary, and East/West 3b continuing southeast past Mahr Reservoir and Denk Peak to the eastern city boundary.

The East/West 3 corridor west of El Camino Real is completely within FPA Core Area #8 and the Batiquitos Lagoon Ecological Reserve. East/West 3c remains within Core Area #8 until reaching the intersection of El Camino Real and Leucadia Boulevard, where it traverses land outside the FPA for the remainder of its path within the city. Its location west of El Camino Real lies within the unmanaged portion of the Continuing Life Communities preserve.

The East/West 3 corridor east of El Camino Real crosses land outside the FPA until reaching Core Area #7 and splitting; the entire reach of both East/West 3a and East/West 3b are completely contained within Core Area #7 and the Rancho La Costa preserve. As with the East/West 1 and East/West 2 corridors, only those portions of the East/West 3 corridor within Carlsbad were included in the study, even though the corridors continue beyond the eastern city boundary.

Habitat within the overall East/West 3 corridor tends to be dominated by wetland/riparian west of El Camino Real, and a mix of coastal sage scrub, non-native grassland, and ornamental communities east of El Camino Real. Species detected within East/West 3 included raccoon, coyote, mule deer, rabbit, skunk and opossum (*Didelphis virginiana*).

Twenty-five potential pinchpoints were initially identified for analysis within East/West 3; four in the main East/West 3, eleven in East/West 3a, one in East/West 3b, and nine in East/West 3c. Pinchpoints EW3-3a-k within the La Costa Resort and Spa property are mostly small golf cart bridges that have ample area around them for animal movement, therefore they were not surveyed. Additionally, EW3-2, EW3-12a, and EW3-12b were not surveyed during field reconnaissance efforts as these points were on private property and inaccessible.

Results of the field reconnaissance found that portions of the East/West 3 corridor offer relatively unrestricted opportunity for wildlife movement, while other areas are severely constrained. Habitat and golf course areas east of the intersection of El Camino Real and La Costa Avenue within East/West 3, East/West 3a and East/West 3b remain largely open and likely support significant wildlife movement. One exception that may restrict movement is located approximately one half mile east of El Camino where the corridor is narrowed by the golf course driving range fencing and a parking lot. Habitat along East/West 3c is more restricted and generally less open with increased distance from La Costa Avenue and along Rancho Santa Fe Road; several surveyed points are potentially constrained due to dense riparian vegetation on either sides of bridges that cross Encinitas Creek. Despite being wide, the undercrossing under El Camino Real on the East/West 3c corridor is dark, muddy, wet and only 3-4 feet high and likely difficult for animal to determine if there is through passage.

There has been and continues to be wildlife movement monitoring in the East/West 3 corridor complex. EW 3-5 was monitored with a camera by CNLM for approximately five years and mule deer were documented. Also, CNLM has intermittently operated a camera at EW 3-6 since 2006 and has documented mule deer, bobcat, coyote and skunk. This camera will remain and be part of the Task 2 monitoring program.

Possible Task 2 monitoring activities include camera and/or tracking at EW3-1, EW3-7, and EW3-13 and possible tracking at EW3-5, EW3-10a, and EW3-10b. The high levels of human presence at EW 3-5, EW 3-10a and EW 3-10b likely make these poor candidates for cameras.

### **3.2.2 Core to Core Corridors**

The Core to Core corridors are characterized by moderate-sized blocks of open space habitat with limited opportunity for unrestricted wildlife movement. The Core to Core corridors generally run north/south and serve as movement opportunities between the more substantial East/West corridors. The habitat within the Core to Core corridors is generally not sufficient to support large-scale species movements (e.g., seasonal migrations, dispersals, etc.), and likely function primarily to support lower-order behaviors (e.g., foraging, etc.).

#### **Core to Core 1**

Core to Core 1 extends from East/West 2a in the south to East/West 1 in the north. It begins just east of Rich Field Drive in the Calavera Hills Village W residential development and continues northwest through the Calavera Hills Master Plan area. Just north of the intersection of Tamarack Avenue and Carlsbad Village Drive the corridor splits. Core to Core 1a extends northward paralleling Harwich Drive and connecting with East/West 1 in the Quarry Creek Master Plan area. After the split, Core to Core 1b continues northwest through the canyon west of Hope Elementary School, through the Quarry Creek Master Plan area, and joins East/West 1 near Buena Vista Creek.

Core to Core 1 begins within FPA Core Area #3 and splits within FPA Link A. Core to Core 1a follow Link A, crosses a small area outside of the FPA, and terminates in Core Area #2. Core to Core 1b leaves Link A shortly after the split, traverses a small area outside of the FPA and is located within Core Area #2 through to its terminus. While most of the Core to Core 1 corridor complex is within the Calavera Hills/Robertson Ranch preserve, some of Core to Core 1a traverses the unmanaged preserves of the various Calavera Hills area HOAs. Both corridors cross the future Quarry Creek preserve and a portion of Core to Core 1b is within the Buena Vista Creek Ecological Reserve.

Habitat within the overall Core to Core 1 corridor tends to be dominated by coastal sage scrub; however Core to Core 1b contains medium to large patches of non-native grassland in its northern reaches and terminates within a riparian habitat. While preserve level monitoring and project specific biological reports have noted wildlife in the area, no wildlife species were detected within Core to Core 1 during the corridor field visit.

Five potential pinchpoints were identified for analysis within Core to Core 1; two in the primary Core to Core 1 corridor, one in Core to Core 1a, and two in Core to Core 1b. Results of the field reconnaissance found that the Core to Core 1 corridor offers relatively unrestricted opportunity for wildlife movement;



however all of the pinchpoints are at-grade crossings, which can present potential constraints to movement. Although portions of the corridor narrow to 300 feet, the habitat within Core to Core 1, including Core to Core 1a and Core to Core 1b, remains largely open.

There was one previous movement monitoring activity along Core to Core 1b. CNLM mounted a wildlife camera in the Calavera Hills/Robertson Ranch preserve near an animal trail between CC1-3 and CC1-4 for several months and detected coyote, skunk and rabbit. Since all of the pinchpoints within the Core to Core 1 corridor complex are at grade crossings, camera monitoring is impractical. Therefore, possible Task 2 monitoring activities could include cameras/tracking along the corridor between pinchpoints and/or roadkills surveys at the road crossings.

## **Core to Core 2**

Core to Core 2 extends from East/West 2 in the north to East/West 3 in the south. Its northern terminus begins north of Cannon Road, near its intersection with Faraday Avenue, and heads southward through The Crossings at Carlsbad Municipal Golf Course and across Palomar Airport Road. Just southeast of the intersection of Palomar Airport Road and Aviara Parkway the corridor splits, with Core to Core 2 continuing towards Poinsettia Lane and Core to Core 2c heading east along Encinas Creek. Core to Core 2c leaves the creek and turns southward near the intersection of Black Rail Road and Sapphire Drive in the Marbrisa residential development. It crosses Poinsettia Lane and traverses the Aviara Master Plan area and the Aviara Golf Club before connecting with East/West 3 at Batiquitos Lagoon. Core to Core 2 splits southeast of the intersection of Poinsettia Lane and Aviara Parkway, with both Core to Core 2a and Core to Core 2b heading south through the Aviara Master Plan area and the Aviara Golf Club and joining East/West 3 west of its connection with Core to Core 2c.

Most of Core to Core 2 exists within FPA Core Area #4, with the southern portion lying within FPA Link F. South of Palomar Airport Road, Core to Core 2a and 2b remain in Link F, then cross an area outside of the FPA near Batiquitos Drive, then enter Core Area #8. Core to Core 2c travels eastward through Link F, enters and traverses FPA Core Area #6, then crosses a relatively large area outside the FPA north of Aviara Parkway before entering Core Area #8 south of Batiquitos Drive.

North of Palomar Airport Road, Core to Core 2 exists within the Agua Hedionda Ecological Reserve, the SDG&E-Hub Park HMP Proposed Hardline area, and the city's Macario Canyon and Crossings Golf Course preserves. South of Palomar Airport Road, Core to Core 2 traverses the Emerald Point Estates preserve and the unmanaged Shorepointe HOA and Marbrisa HOA preserves until splitting within the North Coast Calvary Chapel preserve.

South of Poinsettia Lane, Core to Core 2a and 2b travel through the unmanaged Aviara Master HOA and outside the HMP within the Aviara Golf Club and terminate in the Batiquitos Lagoon Ecological Reserve. After splitting off from Core to Core 2, Core to Core 2c traverses the unmanaged Greystone Homes, Shorepointe HOA, and Palomar Business Park preserves; the Morning Ridge preserve; a Zone 20 Standards Area; the unmanaged Encantada HOA and Aviara Premier Collection preserves; and outside the HMP within the Aviara Golf Club before terminating in Batiquitos Lagoon Ecological Reserve.

Habitat within the overall Core to Core 2 corridor tends to be dominated by coastal sage scrub, non-native grassland, and ornamental plant communities. Species detected within Core to Core 2 included raccoon, coyote, and rabbit.

Twenty potential pinchpoints were identified for analysis within Core to Core 2; eight in the primary Core to Core 2 corridor, two in Core to Core 2a, six in Core to Core 2b, and four in Core to Core 2c. Results of the field reconnaissance found that the Core to Core 2 corridor offers little opportunity for unrestricted wildlife movement, as all branches of the corridor contain multiple at-grade crossings of roadways with moderate to heavy traffic. Although wildlife movement through individual pinchpoints is feasible, large-scale movement within the Core to Core 2 corridor is unlikely. Habitat within Core to Core 2 tends to be a mosaic of relatively open and relatively constricted areas. The Crossings at Carlsbad Municipal Golf Course and Aviara Golf Club offer relatively open habitat for potential movement, but human presence may deter daytime travel by wildlife. Fencing and heavy traffic associated with Poinsettia Lane and Aviara Parkway likely prevent wildlife movement.

Many of the pinchpoints in the Core to Core 2 corridor complex are at grade crossings, thereby eliminating camera monitoring of the crossings. As with pinchpoints within Core to Core 1, possible Task 2 monitoring activities could include cameras/tracking along the corridor between pinchpoints and/or roadkills surveys at the road crossings CC2-3a, CC2-3b, CC2-3c, CC2-4, CC 2-5a and CC2-5b. Another possible Task 2 monitoring activity could involve cameras or tracking at CC2-2 because mule deer have been seen in the city's Veteran's Park preserves and it is questionable if they are crossing Faraday Avenue into the Crossings Golf Course preserve.

### **Core to Core 3**

Core to Core 3 stretches from East/West 2b in the north to East/West 3 in the south. It begins north of Lionshead Drive within the Carlsbad Raceway Business Park and heads southward within the SDG&E major power transmission line easement. After crossing Palomar Airport Road, the corridor traverses the Rancho Carrillo Master Plan area and other HOA lands to reach Alicante Road. At Alicante Road, the corridor enters the La Costa Resort and Spa golf course and heads south, crossing Poinsettia Lane, and connecting with East/West 3.

The northern portions Core to Core 3 exists within either FPA Link D or Core Area #6. Once the corridor reaches the La Costa Resort and Spa property, it leaves the FPA and joins East/West 3 outside of the FPA. The corridor traverses the unmanaged Rancho Carrillo Master HOA preserve, the city's Carrillo Ranch preserve, the Bressi Ranch HMP Proposed Hardline area, and the Rancho La Costa preserve, as well as outside the HMP through the La Costa Resort and Spa property.

Habitat within the overall Core to Core 3 corridor tends to be dominated by coastal sage scrub, non-native grassland, and ornamental plant communities. No wildlife species were detected within the Core to Core 3 corridor during the corridor evaluation.

Six potential pinchpoints were identified for analysis within Core to Core 3 and one additional possible undercrossing was noted in the during the survey. Results of the field reconnaissance found that the Core to Core 3 corridor offers little opportunity for unrestricted wildlife movement, as all crossings were considered constrained. Although wildlife movement through some individual pinchpoints is feasible,



large-scale movement within the Core to Core 3 corridor is unlikely. Habitat within Core to Core 3 tends to be relatively open. The La Costa Resort & Spa property offers relatively open habitat for potential movement, but human presence may deter daytime travel by wildlife and the property is surrounded by fencing. Fencing and/or heavy traffic associated with Palomar Airport Road, Melrose Avenue, El Fuerte Avenue and Alicante Road may preclude most wildlife movement.

Possible Task 2 monitoring activities for Core to Core 3 could include camera and/or tracking at CC 3-1 and CC 3-6, camera and/or tracking in between pinchpoints to assess presence of large animals, and roadkill studies at CC3-2, CC 3-3, CC 3-4, and CC 3-5.

### ***3.2.3 Minor Corridors***

The Minor corridors are characterized by smaller blocks of open space habitat with limited opportunity for wildlife movement. The Minor corridors generally serve as movement corridors between the larger Core to Core and East/West corridors. The habitat within the Minor corridors is considered lower quality and likely not suitable for large-scale wildlife movement, and likely function primarily to support lower-order behaviors (e.g., foraging, etc.).

#### **Minor 1**

Minor 1 extends from Core to Core 1 in the north to East/West 2a in the south. It begins in the canyon west of Hope Elementary School, east and north of Carlsbad Village Drive. It crosses Carlsbad Village Drive and splits just north of the Calavera Hills RV Storage Facility, with Minor 1a continuing south towards the drainage paralleling Tamarack Avenue to Pontiac Drive, and then crossing Tamarack Drive to meet East/West 2a within the Robertson Ranch Master Plan area. After splitting, Minor 1b crosses under Tamarack Avenue, passes south of the Calavera Hills Community Park, and travels east of Edinburgh Drive in the Colony at Calavera Hills residential development before it intersects East/West 2a north of Four Peaks Road in the Robertson Ranch residential development.

Minor 1 begins in FPA Core Area #2 and crosses into Link B before splitting. Minor 1a remains within Link B whereas Minor 1b crosses into FPA Core Area #3 and meets with East/West 2a. The northern terminus of Minor 1 is within the Calavera Hills/Robertson Ranch preserve. After crossing Carlsbad Village Drive and leaving the HMP preserve system, Minor 1 splits with Minor 1a traversing the currently unmanaged Thompson Corp. and Tamarack Point preserves and ending in the Calavera Hills/Robertson Ranch preserve. Minor 1b crosses the unmanaged Thompson Corp. and The Colony at Calavera Hills preserve before ending in the Calavera Hills/Robertson Ranch preserve.

Habitat within the overall Minor 1 corridor tends to be dominated by non-native vegetation, including eucalyptus, and coastal sage scrub. No wildlife species were detected within the Minor 1 corridor during the inventory survey.

Four potential pinchpoints were identified for analysis within the overall Minor 1 corridor; one in the primary Minor 1 corridor, one in Minor 1a, and two in Minor 1b. Results of the field reconnaissance found that the Minor 1 corridor allows for moderate connectivity, although certain crossings likely prevent significant wildlife movement. Connectivity across Tamarack Avenue is likely limited within the

Minor 1 corridor. Habitat within Minor 1 tends to be relatively open, although the majority of Minor 1a south of Tamarack Avenue exists within agricultural fields.

The undercrossing at M1-2 is impeded by a gate within limited access; however there may be opportunities for at grade crossings. Possible Task 2 monitoring activities include tracking and/or roadkill studies for all pinchpoints to ascertain the level of animal movement in the area.

## **Minor 2**

Minor 2 connects East/West 2b in the south with East/West 2a and HMP preserve in the north. It begins just east of the intersection of El Camino Real and Cannon Road and follows Calavera Creek to Sage Creek High School. South of the intersection of College Boulevard and Cannon Road, it splits with Minor 2a continuing northward along Calavera Creek and connecting with East/West 2a just north of Sage Creek High School. After splitting, Minor 2b continues south of Sage Creek High School and terminates in the adjacent open space. Except for a short section of the beginning of Minor 2 being in FPA Link B, the Minor 2 corridor is completely outside of the FPA. The northernmost section of Minor 2a is located within the Calavera Hills/Robertson Ranch preserve and the northeastern section of Minor 2b traverse a Zone 15 Standards Area before terminating in the Carlsbad Highlands Ecological Reserve.

Habitat within the overall Minor 2 corridor tends to be dominated by coastal sage scrub and ornamental plant communities. Wildlife species were detected within the Minor 2 corridor included raccoon.

One potential pinchpoint was identified for analysis within the overall Minor 2 corridor; located in Minor 2a. Results of the field reconnaissance found that the Minor 2 corridor allows for moderate wildlife movement, although connectivity across Cannon Road/College Boulevard is unlikely. Habitat within Minor 2 tends to be relatively restricted along Calavera Creek, but opens up within the Carlsbad Highland Ecological Reserve and the Calavera Hills/Robertson Ranch Habitat preserve.

Possible Task 2 monitoring activities could include a camera and/or tracking at M 2-1, tracking within the Minor 2 corridor, and/or roadkill surveys in the area of College Boulevard and Cannon Road.

## **Minor 3**

Minor 3 extends from Minor 4 in the south to the Calavera area open space in the north. Starting within Los Monos Canyon and heading north and east through agricultural fields, Minor 3 parallels the eastern city boundary and residential development in the City of Oceanside. Minor 3 begins in FPA Core Area #5, enters and traverses Link C, and terminates in Core Area #3. The corridor starts in the UC Dawson-Los Monos preserve and travels through the city's Los Monos preserve, a Zone 15 Standards Area, the Mandana HMP Proposed Hardline area, and the future Holly Springs and Cantarini Ranch preserves before ending in the Calavera Highlands Ecological Reserve.

Habitat within the overall Minor 3 corridor tends to be dominated by coastal sage scrub and disturbed plant communities. No potential pinchpoints were identified for analysis within the overall Minor 3 corridor; therefore, Minor 3 was not evaluated during the field reconnaissance efforts.



## **Minor 4**

Minor 4 extends from East/West 2b in the southwest to the eastern city boundary. It begins at the confluence of Agua Hedionda Creek and La Mirada Creek and follows Agua Hedionda Creek generally northeast. It is completely contained within FPA Core Area #5 and traverses the Carlsbad Oaks North and UC Dawson-Los Monos preserves.

Habitat within the overall Minor 3 corridor tends to be dominated by coastal sage scrub and coast live oak woodland plant communities. No potential pinchpoints were identified for analysis within the overall Minor 4 corridor; therefore, Minor 4 was not evaluated during the field reconnaissance efforts.

## **Minor 5**

Minor 5 branches off of East/West 2b just west of the intersection of El Camino Real and Cannon Road, and continues generally south through Kelly Ranch preserve before connecting with Core to Core 2 within The Crossings Golf Course. Minor 5 exists within Core Area #4.

Habitat within the overall Minor 5 corridor tends to be dominated by coastal sage scrub and riparian plant communities.

Three potential pinchpoints were identified for analysis within the overall Minor 5 corridor. Field reconnaissance has not yet been conducted for the Minor 5 corridor; however the desktop analysis indicated relatively unrestricted wildlife movement. Habitat within Minor 5 tends to be relatively open.

All of the pinchpoints in Minor 5 are at grade crossings. There have been deer sighted in the area and, as with Core to Core 2, there is a question about deer accessing the city's Crossings Golf Course preserve. Therefore, possible Task 2 monitoring activities could include camera and/or tracking within the corridor and/or roadkill studies at the road crossings.

## **Minor 6**

Minor 6 is composed of Minor 6a and Minor 6b, connected by Core to Core 2c. Minor 6a originates at the eastern edge of Interstate 5 at Encinas Creek and generally follows the creek eastward before connecting with Core to Core 2 east of the intersection of Palomar Airport Road and Aviara Parkway. Minor 6b breaks off of Core to Core 2c just north of the intersection of Poinsettia Lane and Fisherman Drive and traverses private open space and conserved lands before connecting with the Minor 7 corridor just east of the intersection of Poinsettia Lane and Estrella de Mar Road.

The entire reach of Minor 6a is located outside of the FPA and all of Minor 6b is located in FPA Core Area #6. Minor 6a begins in the unmanaged Costco Wholesale preserve, and traverses the Encinas Creek preserve, unmanaged Kelly Corporate Center preserve, and the future Kelly/JRM preserve before joining with Core to Core 2c. Minor 6b splits from Core to Core 2c in the Morning Ridge preserve and passes through the unmanaged Palomar Oaks Business Park, Aviara Premier Collection, Poinsettia Heights preserves and the Manzanita Partners preserve before meeting the Minor 7 corridor in the Rancho La Costa preserve.

Habitat within the overall Minor 6 corridor tends to be dominated by coastal sage scrub and riparian scrub plant communities. No wildlife species were detected within the Minor 6 corridor; however previous monitoring has noted both large and medium sized animals.

Five potential pinchpoints were identified for analysis within the overall Minor 6 corridor; three in Minor 6a and two in Minor 6b. Results of the field reconnaissance found that the Minor 6 linkage allows for moderate connectivity, although several points of constriction could prevent large-scale movement within the corridor. Habitat within Minor 6 tends to be a mosaic of relatively open and relatively restricted areas due to development encroaching upon the Encinas Creek corridor.

There has been some previous monitoring within the Minor 6 corridor. For three years, CNLM has operated cameras within the Encinas Creek preserve, approximately one half mile west of M 6-1. The cameras documented regular use by coyote, bobcat and raccoon, as well as other animals. Possible Task 2 monitoring activities could include cameras and/or tracking with Minor 6a to determine the extent of movement of animals within the Encinas Creek preserve and roadkill studies at M 6-3 and M 6-5.

## **Minor 7**

Minor 7 extends between East/West 2b in the north and Core to Core 3 in the south. It begins at La Mirada Creek and travels southward across Faraday Avenue and Palomar Airport Road. At that point it enters and travels through the ornamental landscaping of an industrial park before emerging into native habitat south of Town Garden Lane. It continues southward, paralleling Alicante Road west of the Alga Norte Community Park, crosses La Costa Avenue, and enters the La Costa Resort and Spa golf course to join with Core to Core 3. An alternate route could exist east of Alicante Road near Alga Norte Community Park, which would allow Minor 7 to join Core to Core 3 within natural open space.

Minor 7 begins in FPA Core Area #5. South of Palomar Airport Road it crosses outside of the HMP then enters Core Area #6 until reaching Poinsettia Lane. The original route exits the FPA to join Core to Core 3 whereas the alternate route would remain in FPA Core Area #6. The northern terminus of Minor 7 is within the Carlsbad Oaks North preserve. The stretch of corridor between Palomar Airport Road and Town Garden Lane is outside the HMP, as is a short stretch of corridor south of Town Garden Lane. The corridor then enters the Bressi Garden HMP Proposed Hardline area and continues into and through the Rancho La Costa preserve to Poinsettia Lane.

Those areas with habitat within the overall Minor 7 corridor tend to be dominated by coastal sage scrub and coast live oak woodland plant communities. The wildlife species detected within the Minor 7 corridor included rabbit.

Five potential pinchpoints were identified for analysis within the overall Minor 7 corridor. Results of the field reconnaissance found that the Minor 7 corridor offers no overall connectivity due to the interceding industrial development.

Possible Task 2 monitoring activities could include a roadkill study at M7-2 to see if southbound animals attempt to cross Palomar Airport Road and camera/tracking in the area of M 7-5 to explore if animals use the alternate route.



## **Minor 8**

Minor 8 connects Core to Core 3 in the northwest with East/West 3 in the southeast. It starts at the La Costa Resort and Spa golf course west of Goldstone Road and follows the SDG&E major power transmission line easement southeastward between the residential neighborhoods in La Costa, crossing El Fuerte Street and joining Core to Core 3 at San Marcos Creek

Minor 8 begins in FPA Core Area #6, traverses Link E and ends in Core Area #7. After starting in the Rancho La Costa preserve, Minor 8 crosses a section outside of the HMP and then reenters the Rancho La Costa preserve. After crossing Alga Road, Minor 8 enters the unmanaged Kozicki preserve, then crosses another section outside of the HMP and, on the southeast side of El Fuerte, reenters the Rancho La Costa preserve.

Habitat within the overall Minor 8 corridor tends to be dominated by coastal sage scrub and disturbed plant communities. No wildlife species were detected within the Minor 8 corridor during the inventory field visit.

Four potential pinchpoints were identified for analysis within the overall Minor 8 corridor. Results of the field reconnaissance found that the Minor 8 corridor allows for moderate connectivity, although several at-grade crossings of roads with moderate traffic may affect movement. Habitat within Minor 8 tends to be relatively open, with the existing utility easement preserving habitat within the corridor. As with other corridors containing at grade crossings, possible Task 2 monitoring activities could include cameras/tracking along the corridor between pinchpoints and/or roadkills surveys at the road crossings.

## **Minor 9**

Minor 9 splits off of East/West 3b just east of Rancho Santa Fe Road and heads generally north of Mahr Reservoir to the eastern city boundary. Minor 9 exists completely within Core Habitat Area 7. It begins outside of the HMP, then enters and traverses the Rancho La Costa preserve and the unmanaged RECM preserve, and then reenters the Rancho La Costa preserve before terminating at the city boundary. Habitat within the Minor 9 corridor tends to be dominated by coastal sage scrub and disturbed plant communities. No potential pinchpoints were identified for analysis within the Minor 9 corridor; therefore, Minor 9 was not evaluated during the field reconnaissance efforts.

## **Minor 10**

Minor 10 breaks off of East/West 3c just southwest of the intersection of El Camino Real and La Costa Avenue and heads generally south, between the La Costa Glen Carlsbad Retirement Community and the western city boundary, and continues to the southern city boundary. Minor 10 exists completely within FPA Core Area #8, and travels through the unmanaged Continuing Life Communities preserve, and area outside of the HMP and the La Costa Glen preserve.

Habitat within the overall Minor 10 corridor tends to be dominated by coastal sage scrub and riparian scrub plant communities. Wildlife species detected within the Minor 10 linkage include coyote and raccoon.

One potential pinchpoint was identified for analysis within the overall Minor 10 corridor. Results of the field reconnaissance found that the Minor 10 corridor allows for relatively unrestricted wildlife movement, although the Leucadia Boulevard crossing may limit movement by some species. Habitat within Minor 10 tends to be open. CNLM currently operates a camera in M 10-1 and this information will be included in the Task 2 monitoring.

## **Minor 11**

Minor 11 extends between Minor 10 in the west to East/West 3c in the east. Its western terminus is just west of Calle Barcelona and it continues south of the Forum shopping center to meet East/West 3c just west of El Camino Real. Minor 11 exists completely within FPA Core Area #8. It begins in the La Costa Glen preserve, crosses an area outside of the HMP and joins East/West 3c in the unmanaged Continuing Life Communities preserve.

Habitat within the Minor 11 corridor tends to be dominated by willow woodland. Signs of wildlife within the Minor 11 linkage included coyote and raccoon tracks and a monitoring camera recently detected bobcat.

Two potential pinchpoints were identified for analysis within the Minor 11 corridor. Results of the field reconnaissance found that the Minor 11 corridor allows for restricted wildlife movement between the Minor 10 and East/West 3c corridors. M-11 is about 20 feet wide for its entire length and sits between two commercial parking lots/shopping malls therefore habitat within the corridor tends to be restricted due to the adjacent developments.

There is currently a CNLM operated camera in M11-1 and this information will be included in Task 2 monitoring. M11-2 is an at-grade crossing of a seldom used service road and therefore not recommended for further study.



Appendix C

HMP Wildlife

Movement Potential

Pinchpoint Data Sheet





HMP Wildlife Movement Potential Pinch Point Data Sheet			
Date:	Link:	Station:	Surveyors:
Structure Type:		Structure Material:	Mult. Chambers?
Bottom type: sand dirt mud gravel cobbles rip-rap hard-armored vegetation present water debris trash			
Height:	Width:	Length:	
Constraints? Yes no potential		Describe:	
Describe fencing:			
Describe road conditions: (how busy, divided or not, etc.)			
Describe site logistics:			Good tracking potential?
Describe camera mount options:			
Sign observed (tracks, scat): None coyote raccoon skunk deer rabbit opossum bobcat rodent lizard/snake other			
Other species observed:			
Vegetation thickness at N/E entrance: none open moderately open moderately blocked blocked			
Dominant vegetation at N/E entrance: short grass/forbs tall grass/forbs shrubs trees			
Vegetation thickness at S/W entrance: none open moderately open moderately blocked blocked			
Dominant vegetation at S/W entrance: short grass/forbs tall grass/forbs shrubs trees			
Describe site logistics: General Cover Estimates-list veg types beyond each entrance at 20 m and 100 m radius.			
N/E entrance 20 M		N/E entrance 100 M	
S/W entrance 20 M		S/W entrance 100 M	
Threats:			
Primary threat:			Severity: unknown none low moderate severe
Secondary threat:			Severity: unknown none low moderate severe
Management recommendations:			
Take standard photos at each end (1) facing in, (2) facing out, (2) facing toward entrance from 20 m out. Minimum labeling: point number, entrance (N, S, E, or W). Take other photos as necessary (tracks, threats, etc.)			
Other notes: Use the other side of the page as necessary			





# Appendix D

## Pinchpoint

## Photodocumentation





## Pinchpoint Photodocumentation



EW1-3, interior looking south from N side, August 2013.



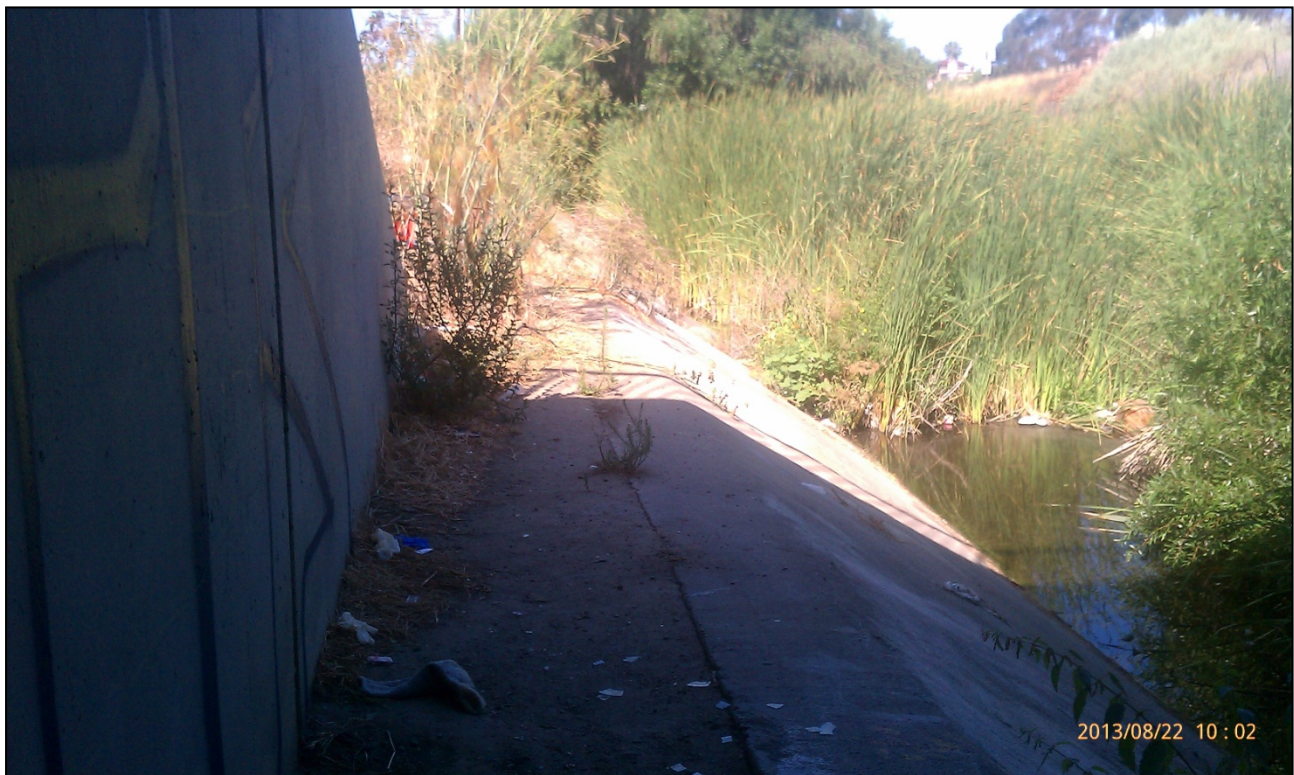
EW1-3, looking south along east entrance, August 2013



## Pinchpoint Photodocumentation



EW1-4, looking underneath from SE entrance, August 2013



EW1-4, looking on west on south side, August 2013



## Pinchpoint Photodocumentation



EW1-5, interior showing human impacts, August 2013.



EW1-5, looking east on south side, August 2013

## Pinchpoint Photodocumentation



EW1-6, interior looking east, August 2013.



EW1-6, looking north from west entrance, August 2013.



## Pinchpoint Photodocumentation



EW1-7, looking west from adjacent developed property in Oceanside.



## Pinchpoint Photodocumentation



EW2-1, southern entrance showing permanent water August 2013.



EW2-1, N end at 20 meters showing thick vegetation, August 2013.



## Pinchpoint Photodocumentation



EW2-2, looking west from adjacent developed residential property.



## Pinchpoint Photodocumentation



EW2-3, west side, August 2013.



EW2-3, west side at 20 meters, August 2013.



## Pinchpoint Photodocumentation



EW2-4, 20 meters west of west entrance, looking east, August 2013.



EW2-4, looking west from east entrance, August 2013.



## Pinchpoint Photodocumentation



EW2-5, interior looking south, August 2013.



EW2-5, looking south at 20 meters from north entrance, August 2013.



## Pinchpoint Photodocumentation



EW2-6, south side, August 2013



EW2-6, north side at 20 meters, August 2013



## Pinchpoint Photodocumentation



EW2-7, south side at 20 meters, August 2013



EW2-7, north side at 20 meters, August 2013



## Pinchpoint Photodocumentation



EW2-8a, south side at 20 m, August 2013



EW2-8b, north side at 20 meters, August 2013



## Pinchpoint Photodocumentation



EW2-9, looking south from north entrance, August 2013.



EW2-9, looking north at 20 meters from south entrance, August 2013.



## Pinchpoint Photodocumentation



EW2-10, looking west from east entrance, August 2013.



EW2-10, looking east at 20 meters from west entrance, August 2013.



## Pinchpoint Photodocumentation



EW3-1, looking east from west entrance, August 2013.



EW3-1, looking east at 20 meters from west entrance, August 2013.



## Pinchpoint Photodocumentation



EW3-2, western end looking east.



## Pinchpoint Photodocumentation



EW3-4, looking east, August 2013.



EW3-4, north side August 2013.



## Pinchpoint Photodocumentation



EW3-5, south side, August 2013.



EW3-5, north side, August 2013.



## Pinchpoint Photodocumentation

08-19-13 11:37 EW3-6 West End



Location: 33.092584 -117.225

EW3-6, west side, August 2013.

08-19-13 11:43 EW3-6 East End



Location: 33.09307 -117.225

EW3-6, east side, August 2013



## Pinchpoint Photodocumentation



EW3-7, looking north from south entrance, August 2013.



EW3-7, looking west from south entrance, August 2013.



## Pinchpoint Photodocumentation



EW3-8, looking northeast from south entrance, August 2013.



EW3-8, looking west from south end, August 2013.



## Pinchpoint Photodocumentation



EW3-9, north side underneath, August 2013.



EW3-9 north side, August 2013.



## Pinchpoint Photodocumentation



EW3-10a, north side August 2013.



EW3-10a, north side August 2013.



## Pinchpoint Photodocumentation



EW3-10b, west side, August 2013.



EW3-11, east side, August 2013.



## Pinchpoint Photodocumentation



EW3-12a, looking east from center of structure.



EW3-12a, looking west towards EW 3-12b.



## Pinchpoint Photodocumentation



EW3-13, looking north from west entrance, August 2013.



EW3-13, looking east from west entrance, August 2013.



Pinchpoint Photodocumentation



CC1-1a, looking northwest from east side, August 2013.



CC1-1a, looking northwest from west side, August 2013.



Pinchpoint Photodocumentation



CC1-1b, looking northeast from west side, August 2013.



CC1-1b, looking southwest from east side, August 2013.



Pinchpoint Photodocumentation



CC1-2, looking east from west side, August 2013.



CC1-2, looking east from east side, August 2013.



Pinchpoint Photodocumentation



CC1-3, looking west from west side, August 2013.



CC1-3, looking south from east side, August 2013.



Pinchpoint Photodocumentation



CC1-4, looking west from east side, August 2013.



CC1-4, looking east from east side, August 2013.



Pinchpoint Photodocumentation



CC2-1, looking north at 20 meters from south side, August 2013.



CC2-1, looking west at crossing from south side, August 2013.



Pinchpoint Photodocumentation



CC2-2, looking south from north side, August 2013.



CC2-2, looking south from north side, August 2013.



Pinchpoint Photodocumentation



CC2-3a, looking north from north side, August 201



CC2-3a, looking north at 20 meters from south side, August 2013.



Pinchpoint Photodocumentation



CC2-3b, looking south from north side, August 2013



CC2-3b, looking north from north side, August 2013.



Pinchpoint Photodocumentation



CC2-3c, looking north from south side, August 2013.



CC2-3c, looking south at 20 meters from north side, August 2013.



Pinchpoint Photodocumentation



CC2-4, looking north from south entrance of culvert, August 2013.



CC2-4, looking north from north end, August 2013.



Pinchpoint Photodocumentation



CC2-5a, looking north at 20 meters from south side, August 2013.



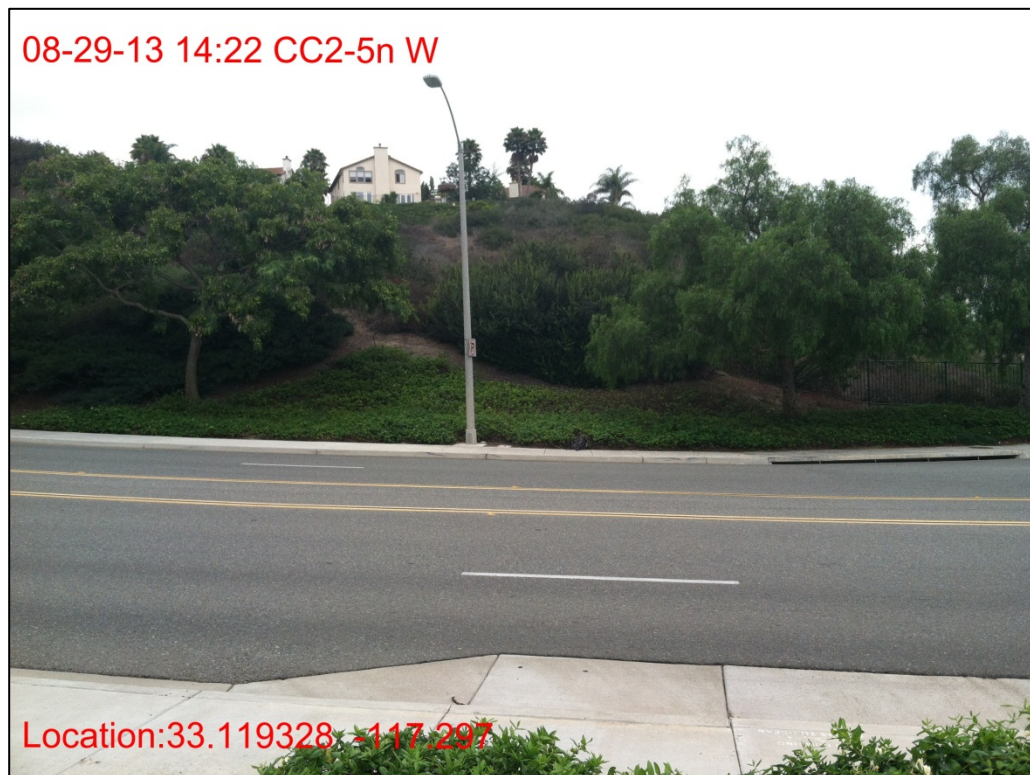
CC2-5a, looking south at 20 meters from north side, August 2013.



Pinchpoint Photodocumentation



CC2-5b, looking west from east side, August 2013.



CC2-5b, looking east from west side, August 2013.



Pinchpoint Photodocumentation



CC2-6a, looking north from south side, August 2013.



CC2-6a, looking south at 20 meters from north side, September 2013.



Pinchpoint Photodocumentation



CC2-6b, looking south from north side, August 2013.



CC2-6b, looking north from south side, August 2013.



Pinchpoint Photodocumentation



CC2-7a, looking north from north side, September 2013.



CC2-7a, looking northeast from south side, September 2013.



Pinchpoint Photodocumentation



CC2-7b, at-grade crossing looking south from north side, September 2013.



CC2-7b, south side at 20 meters out



Pinchpoint Photodocumentation



CC2-8a, at-grade crossing, south side, September 2013.



CC2-8a, fencing on south side, September 2013.



Pinchpoint Photodocumentation



CC2-8b at-grade crossing, south side, September 2013.



CC2-8b, fencing on south side, September 2013.



Pinchpoint Photodocumentation



CC2-9, south side facing into undercrossing, September 2013.



CC2-9, north side at 20 m out, September 2013.



Pinchpoint Photodocumentation



CC2-10a, north side facing into undercrossing, September 2013



CC2-10a, north side at 20 meters out, September 2013



Pinchpoint Photodocumentation



CC2-10b, south side at 20 m out, September 2013.



CC2-10b, north side at 20 m out, September 2013.



Pinchpoint Photodocumentation



CC2-10c, east side facing undercrossing, September 2013.



CC2-10c, east side facing undercrossing, September 2013



Pinchpoint Photodocumentation



CC2-11, looking north from north side, September 2013.



CC2-11, looking south from north side, September 2013.



Pinchpoint Photodocumentation



CC2-12, north side, at-grade crossing at 20 m out, September 2013.



CC2-12, south side, September 2013.



Pinchpoint Photodocumentation



CC2-13, south side facing into undercrossing, September 2013.



CC2-13, south side at 20 m out, September 2013.



Pinchpoint Photodocumentation



CC2-14, south side facing into undercrossing, September 2013.



CC2-14, south side at 20 m out, September 2013.



## Pinchpoint Photodocumentation



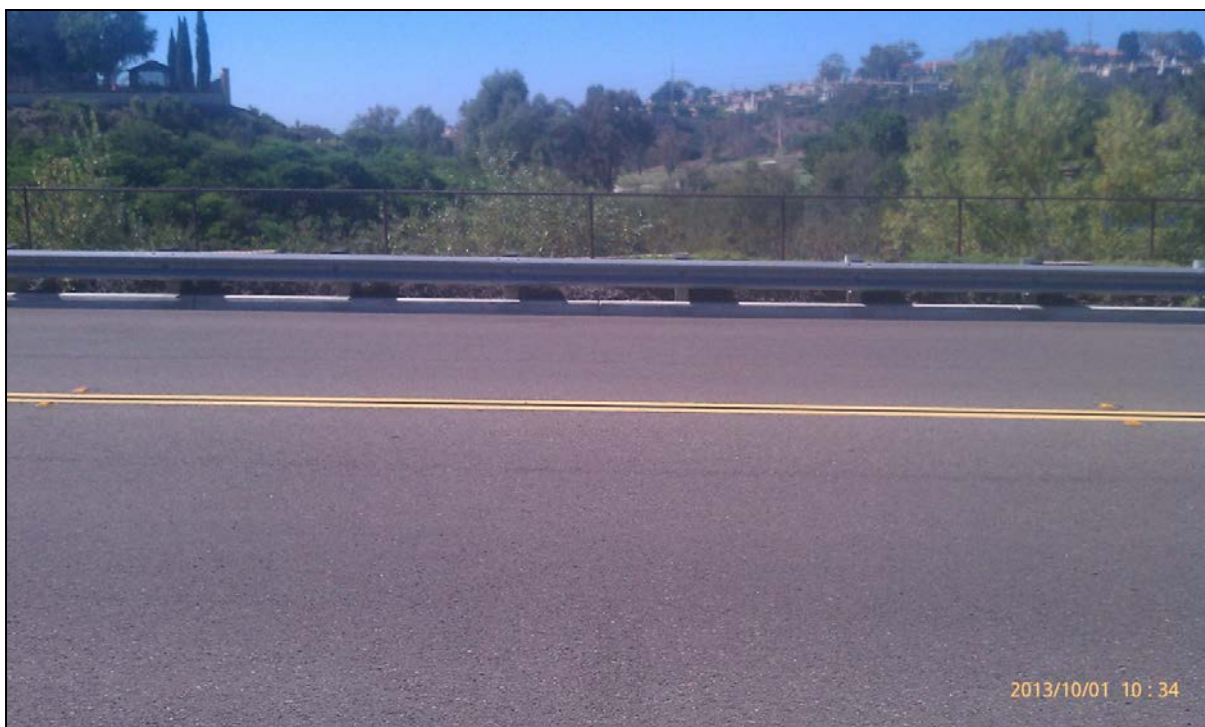
CC3-1 south side facing north, golf cart path entrance, October 2013.



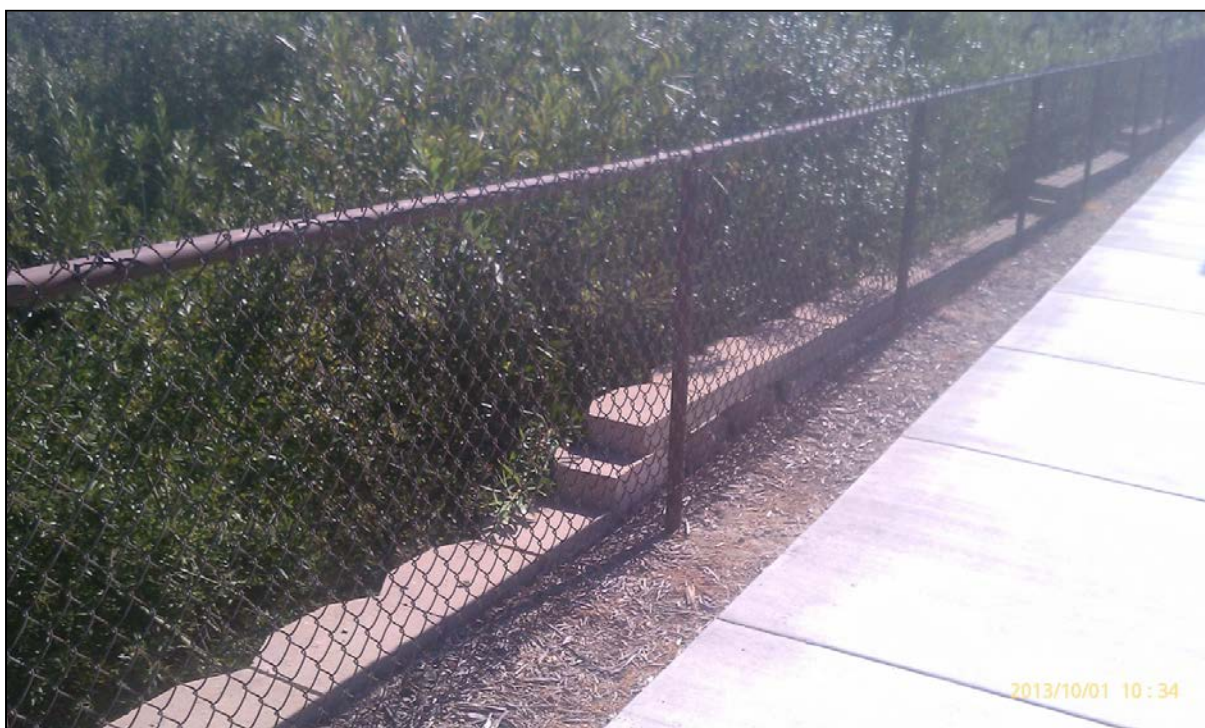
CC3-1 south entrance looking north, alternate route through pipe, October 2013.



## Pinchpoint Photodocumentation



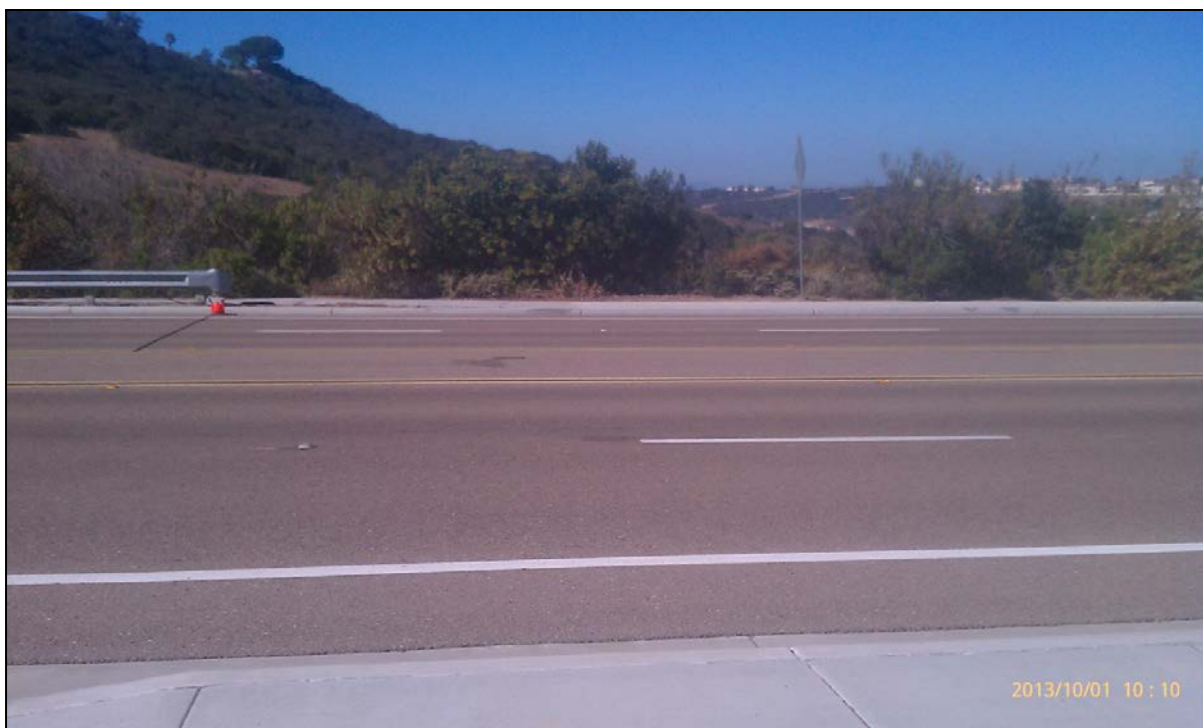
CC3-2, at-grade crossing, east side facing west showing fencing along golf course, October 2013.



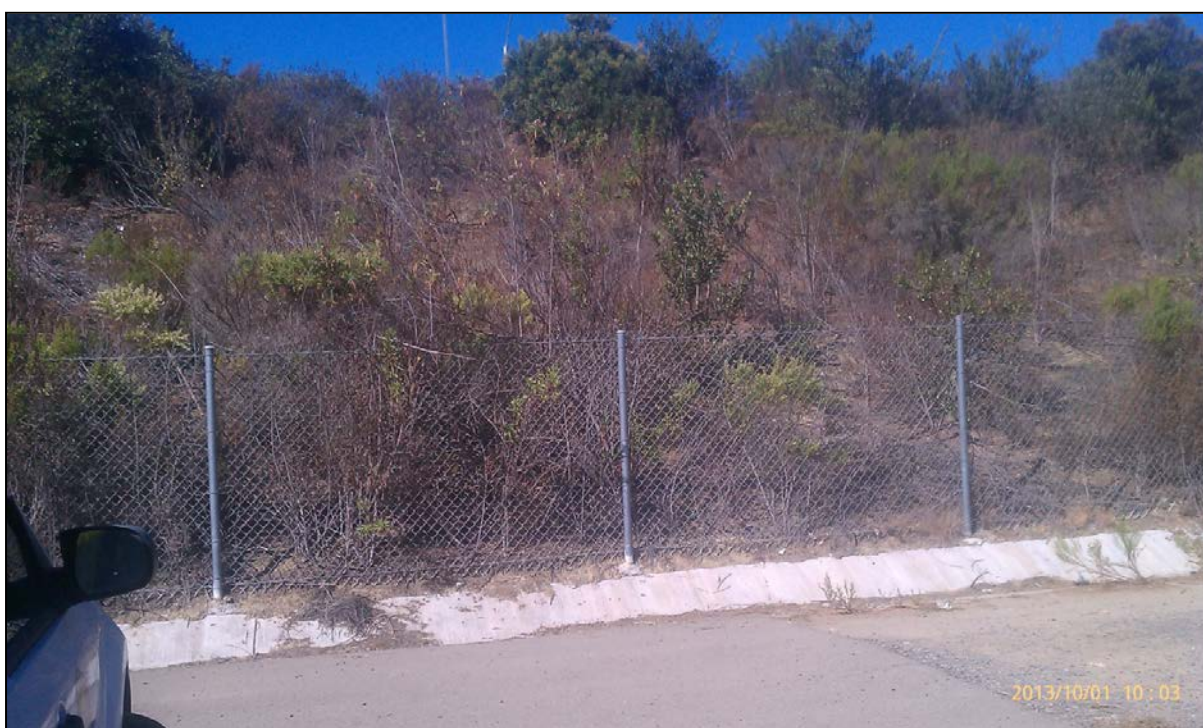
CC3-2 west side, showing fencing, October 2013.



## Pinchpoint Photodocumentation



CC3-3a, at-grade crossing, east side looking west, October 2013.



CC3-3a, east side looking west from access road, showing fencing, October 2013.



## Pinchpoint Photodocumentation



CC3-3b, north side entrance facing toward undercrossing showing long, narrow pipe, Oct 2013.



CC3-3b, north side looking south, showing that entrance is blocked by vegetation, October 2013.



## Pinchpoint Photodocumentation



CC3-4, east side looking west, October 2013.



CC3-4, west side outlet from spillway, October 2013.

## Pinchpoint Photodocumentation



CC3-5, looking south from north side, October 2013.



CC3-5, north side looking north (line of sight to M7-5), October 2013



## Pinchpoint Photodocumentation



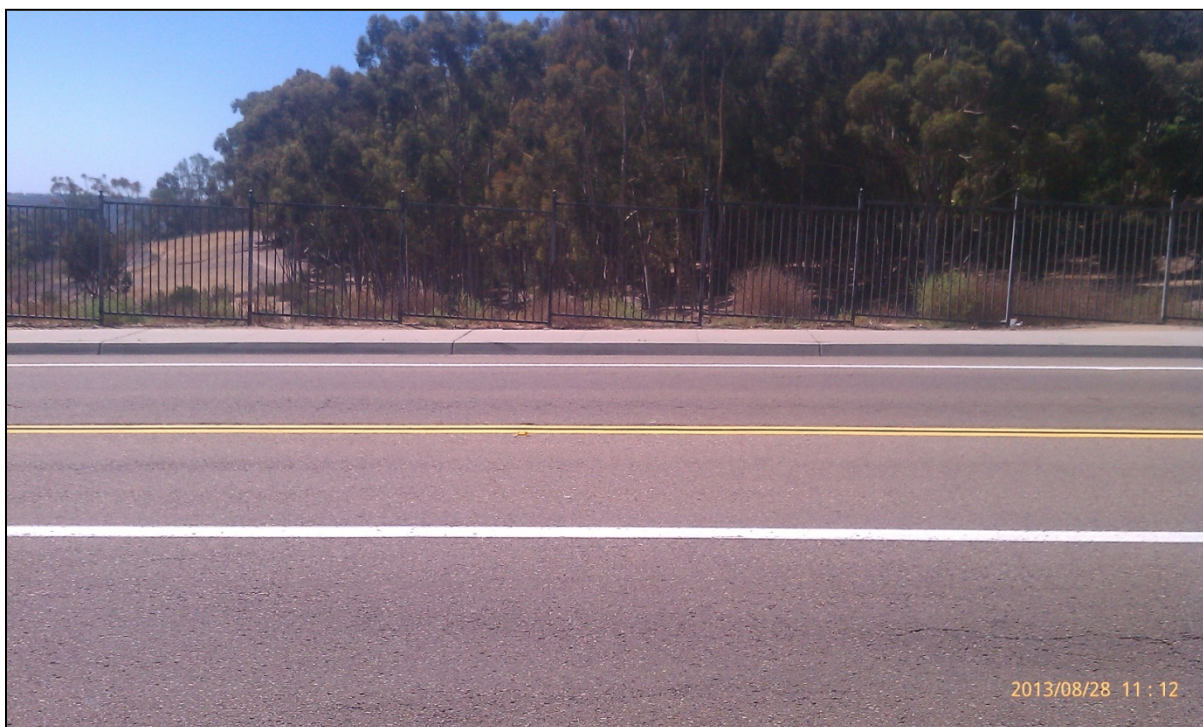
CC3-6. South side looking north from entrance, October 2013



CC3-6. South side looking north from 30 feet out, October, 2013.



## Pinchpoint Photodocumentation



M1-1, north side facing south; note fencing, August 2013.



M1-1, north side showing small pipe outlet, August 2013.



## Pinchpoint Photodocumentation



M1-2 – west side facing east, showing locked gate at both ends, August 2013.



M1-2 east side facing west, August 2013.



## Pinchpoint Photodocumentation



M1-3, at-grade crossing, north side facing south, August 2013.



M1-3, south side facing north, August 2013.



## Pinchpoint Photodocumentation



M1-4, looking north from west end, August 2013.



M1-4, looking east from west end, August 2013.



Pinchpoint Photodocumentation



M2-1, north end facing south into undercrossing, August 2013.



M2-1, north side facing north, showing offshoot pipe, August 2013.



## Pinchpoint Photodocumentation



M5-1, looking south from north entrance.



M5-1, looking north at 20 meters from south entrance.



## Pinchpoint Photodocumentation



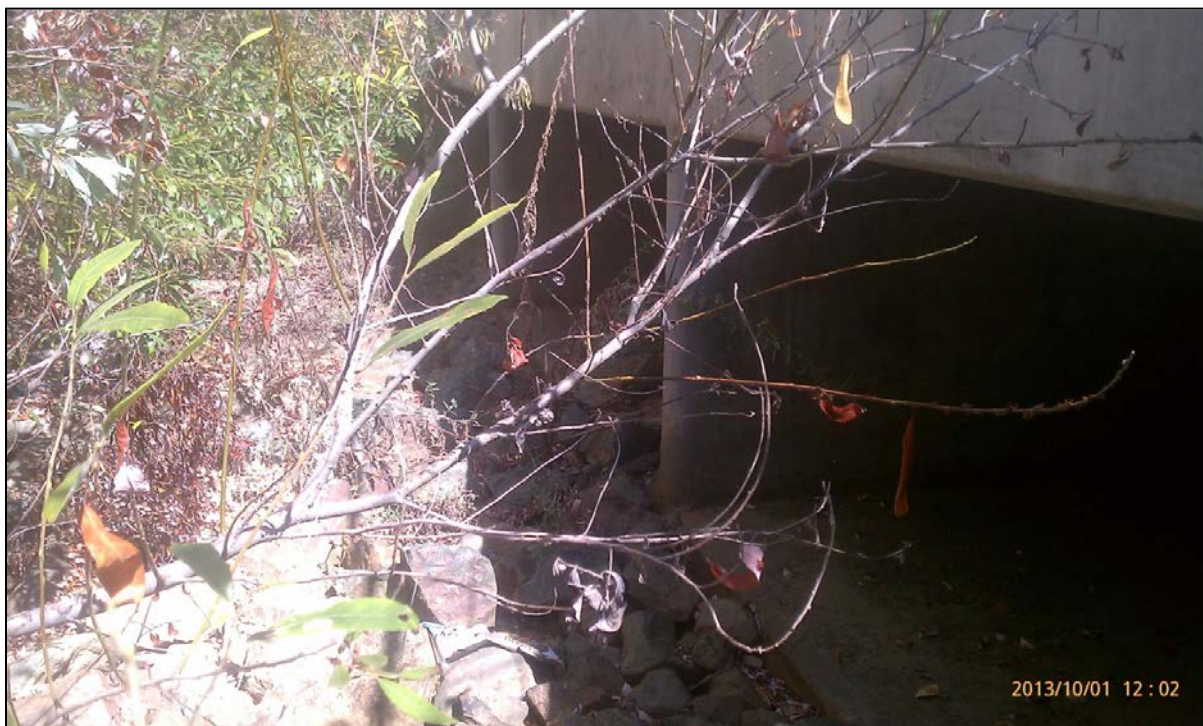
M5-2a, looking south towards north entrance.



M5-2b, north side looking south.



## Pinchpoint Photodocumentation



M6-1 east side looking southwest, October 2013.



M6-1, east entrance looking east, October 2013.



## Pinchpoint Photodocumentation



M6-2 east entrance looking west, October 2013.



M6-2 east entrance facing east, October 2013.



## Pinchpoint Photodocumentation



M6-3, west entrance facing southeast at multi-chambered undercrossing, October 2013.

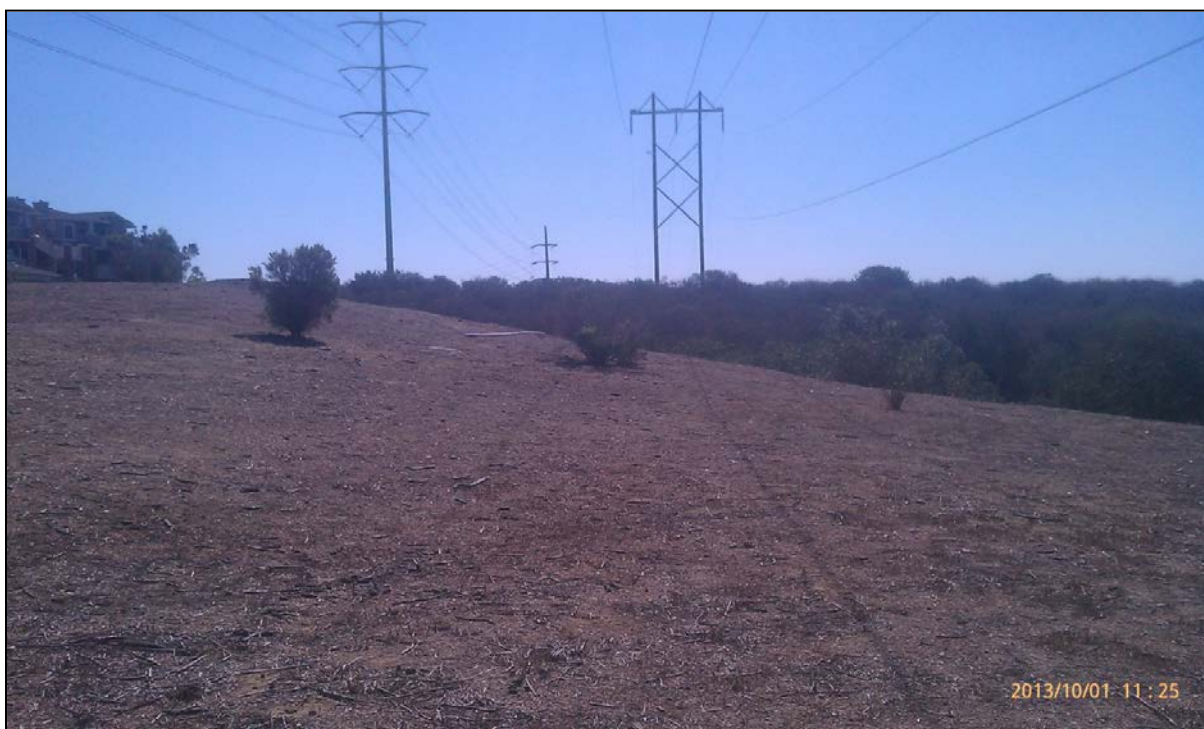


M6-3 east entrance facing toward undercrossing, showing low ceiling, October 2013.

## Pinchpoint Photodocumentation



M6-4, at-grade crossing, south side, facing northeast, showing fence on north side, October 2013.



M6-4, south side facing south, October 2013.



## Pinchpoint Photodocumentation



M6-5, at-grade crossing, east side looking west, October 2013

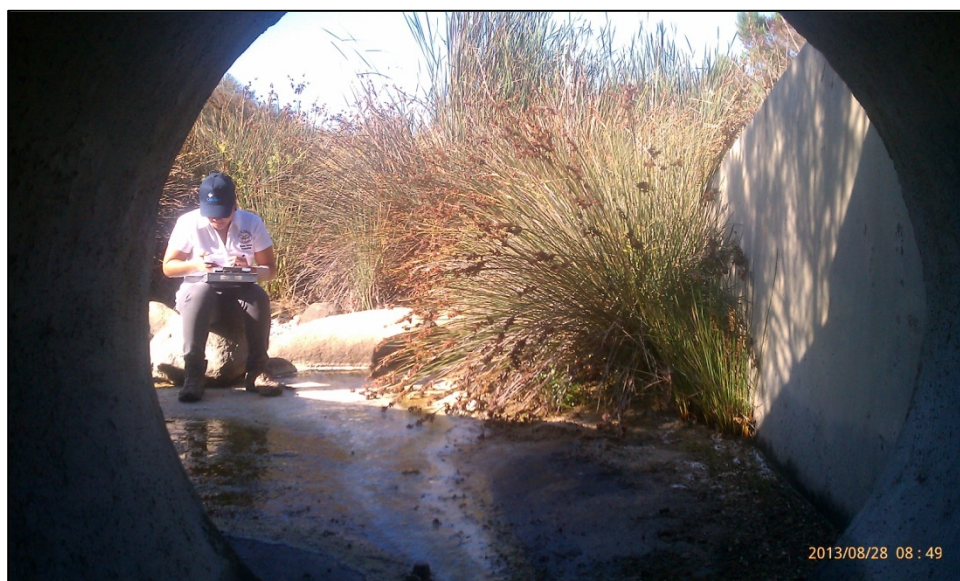


M6-5, west side facing west, showing barbed wire fencing, October 2013.

## Pinchpoint Photodocumentation



M7-1, north side showing constraints, August 2013.



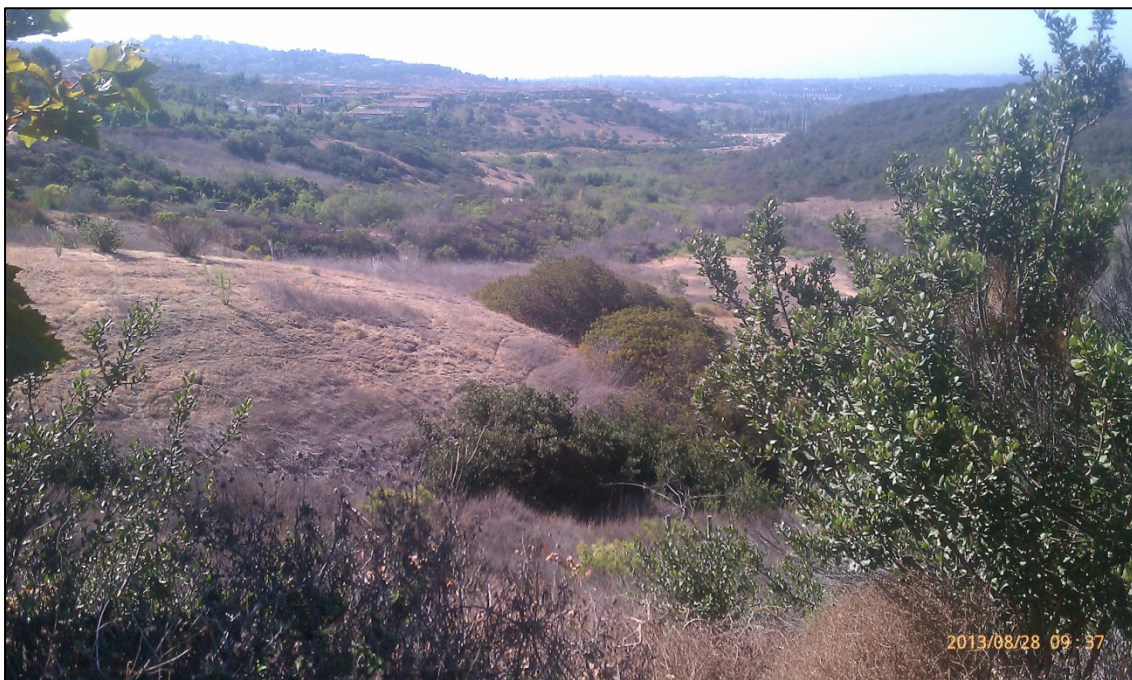
M7-1, south side looking south, August 2013.



## Pinchpoint Photodocumentation



M7-2, at-grade crossing, north side facing southeast, August 2013.



M7-2, north side looking north from habitat edge, August 2013.



## Pinchpoint Photodocumentation



M7-3, at-grade crossing, north side facing south, August 2013.



M7-3, at-grade crossing, north side facing south, August 2013.



## Pinchpoint Photodocumentation



M7-4, at-grade crossing, south side looking north, August 2013



M7-4, south side facing south, August 2013.



## Pinchpoint Photodocumentation



M7-5, looking south from north side, August 2013.



M7-5, looking south from north side, August 2013.



## Pinchpoint Photodocumentation



M8-1, at-grade crossing east side facing west from 40 feet away, October 2013.



M8-1, west side looking east, October 2013.



## Pinchpoint Photodocumentation



M8-2, at-grade crossing west side facing east, October 2013.



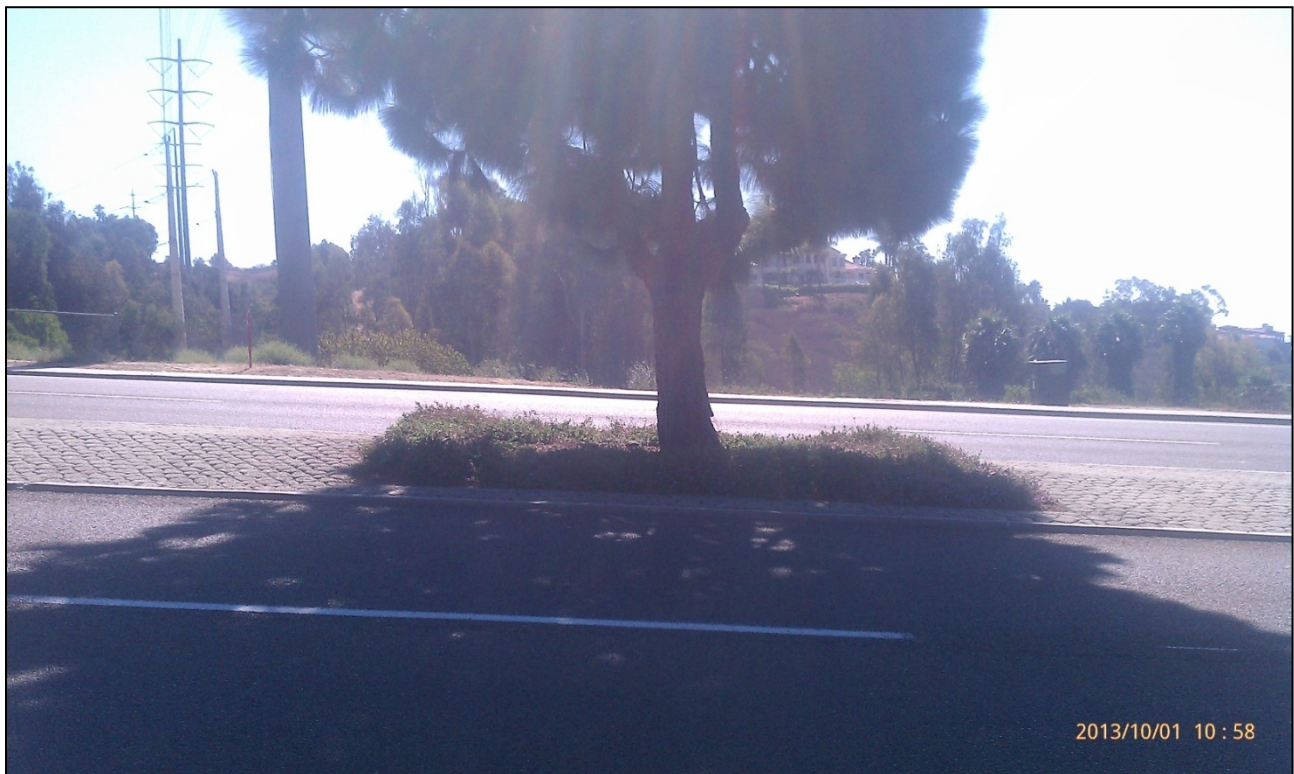
M8-2 east side looking west, October 2013.



## Pinchpoint Photodocumentation



M8-3, east side looking west, October, 2013.



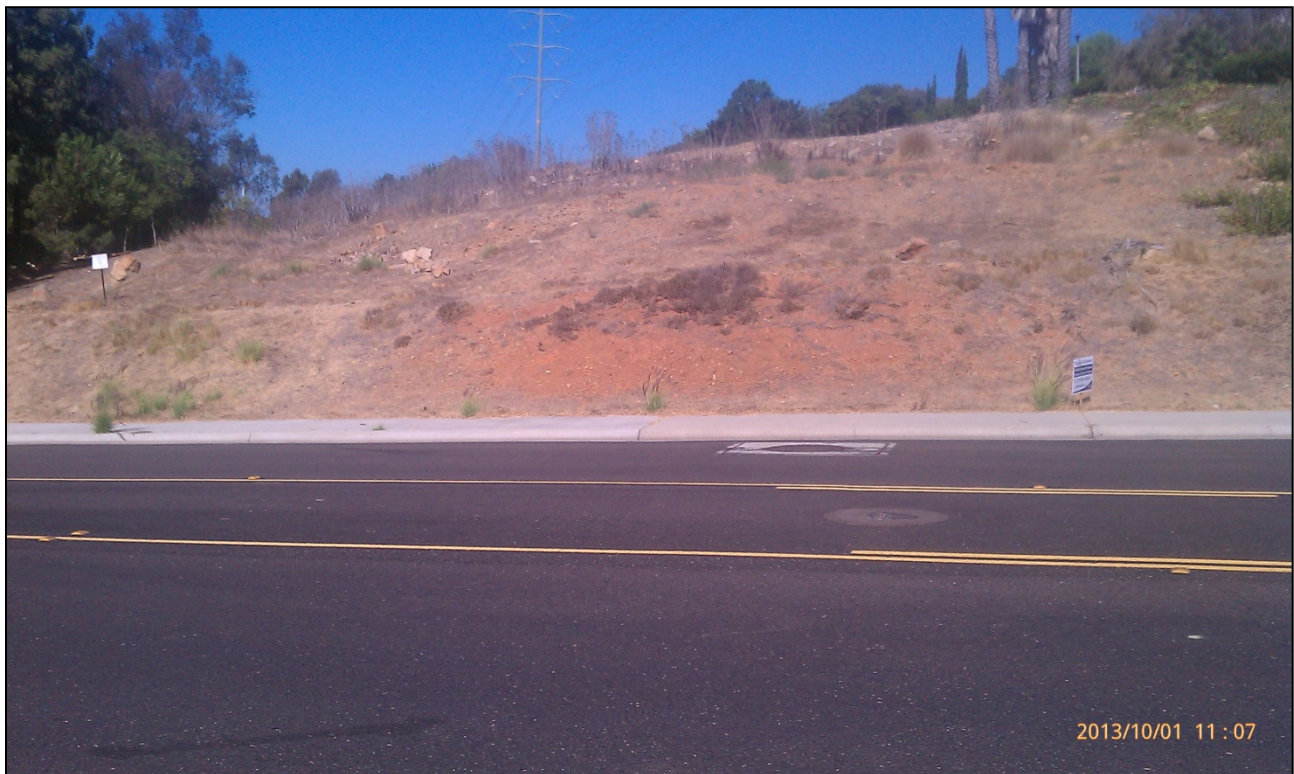
M8-3, west side looking east, October, 2013.



## Pinchpoint Photodocumentation



M8-4, at-grade crossing, west side looking east from top of slope, October 2013.



M8-4, east side looking west, October 2013.



## Pinchpoint Photodocumentation



M10-1, south entrance looking north at 20 meters.



M10-1, looking north from interior.



## Pinchpoint Photodocumentation



M11-1, west side looking east.



## Pinchpoint Photodocumentation



M11-1, east side looking west



M11-2, west side looking northeast.





Appendix E

HMP Wildlife

Movement Pinchpoint

Descriptions





# HMP Wildlife Movement Pinchpoint Description

## LOCATION DESCRIPTION

Corridor	EW1	Point Code:	EW1-1a	Assessment Date		Surveyors:	
Latitude:	33.16840639700		Longitude:	-117.35649710700		GPS Datum:	WGS 84
Nearest River:	Buena Vista Lagoon						
Nearest Road	South Coast Highway			Road Conditions:	3 lane, no median		
Structure Type:	bridge		Multi Chambers?			Structure Material	
Bottom Type:	water						
Height(m):		Width (m)		Length (m):		Openness Ratio:	
						Constraints	yes
Description of Constraints	water, traffic						
Access Logistics	inaccessible due to water						
Fencing:	none						
Camera Options:							
Tracking Potential	no						
Species/Sign Observed:							

## DESCRIPTION OF VEGETATION EW1-1a

N or E Entrance	Veg. Thickness		Dominant Vegetation Type			
Cover Classes at 20	Shrubs		Grass/Herbs		Trees:	
	Bare/Rock:		Native Species:		Exotic Species	
S or W Entranc	Veg. Thickness		Dominant Vegetation Typ			
Cover Classes at 20	Shrubs		Grass/Herb		Trees:	
	Bare/Rock:		Native Species:		Exotic Species	
Veg. Comments:						

## THREATS AND MANAGEMENT RECOMMENDATIONS EW1-1a

Primary Threat:		Severity	
Secondary Threat:		Severity	
Mgmt Recommendations			
Comments:			
	Not visited		

# HMP Wildlife Movement Pinchpoint Description

## LOCATION DESCRIPTION

Corridor	EW1	Point Code:	EW1-1b	Assessment Date		Surveyors:			
Latitude:	33.16761057900		Longitude:	-117.35580783600		GPS Datum:	WGS 84		
Nearest River:	Buena Vista Lagoon								
Nearest Road	South Coast Highway			Road Conditions:	3 lane, no median				
Structure Type:	bridge		Multi Chambers?			Structure Material			
Bottom Type:	water								
Height(m):		Width (m)		Length (m):		Openness Ratio:		Constraints	yes
Description of Constraints	water, traffic								
Access Logistics	inaccessible due to water								
Fencing:	none								
Camera Options:									
Tracking Potential	no								
Species/Sign Observed:									

## DESCRIPTION OF VEGETATION EW1-1b

N or E Entrance	Veg. Thickness		Dominant Vegetation Type				
Cover Classes at 20	Shrubs		Grass/Herbs		Trees:		
	Bare/Rock:		Native Species:		Exotic Species		
S or W Entranc	Veg. Thickness		Dominant Vegetation Typ				
Cover Classes at 20	Shrubs		Grass/Herb		Trees:		
	Bare/Rock:		Native Species:		Exotic Species		
Veg. Comments:							

## THREATS AND MANAGEMENT RECOMMENDATIONS EW1-1b

Primary Threat:		Severity	
Secondary Threat:		Severity	
Mgmt Recommendations			
Comments:			
	not visited		



# HMP Wildlife Movement Pinchpoint Description

## LOCATION DESCRIPTION

Corridor	EW1	Point Code:	EW1-2	Assessment Date		Surveyors:			
Latitude:	33.17345967600		Longitude:	-117.34874874700		GPS Datum:	WGS 84		
Nearest River:	Buena Vista Lagoon								
Nearest Road	I-5		Road Conditions:	10, lane with median					
Structure Type:	bridge		Multi Chambers?			Structure Material			
Bottom Type:	water								
Height(m):		Width (m)		Length (m):		Openness Ratio:		Constraints	yes
Description of Constraints	water, traffic								
Access Logistics	inaccessible due to water								
Fencing:	none								
Camera Options:									
Tracking Potential	no								
Species/Sign Observed:									

## DESCRIPTION OF VEGETATION EW1-2

N or E Entrance	Veg. Thickness		Dominant Vegetation Type				
Cover Classes at 20	Shrubs		Grass/Herbs		Trees:		
	Bare/Rock:		Native Species:		Exotic Species		
S or W Entranc	Veg. Thickness		Dominant Vegetation Typ				
Cover Classes at 20	Shrubs		Grass/Herb		Trees:		
	Bare/Rock:		Native Species:		Exotic Species		
Veg. Comments:							

## THREATS AND MANAGEMENT RECOMMENDATIONS EW1-2

Primary Threat:		Severity	
Secondary Threat:		Severity	
Mgmt Recommendations			
Comments:			
	not visited; permanent water; at grade movement would be difficult due to high traffic volume		

# HMP Wildlife Movement Pinchpoint Description

## LOCATION DESCRIPTION

Corridor	EW1	Point Code:	EW1-3	Assessment Date	8/22/2013	Surveyors:	M. Grim, V. Mai		
Latitude:	33.17904977400		Longitude:	-117.34054879600		GPS Datum:	WGS 84		
Nearest River:	Buena Vista Creek								
Nearest Road	Jefferson Street		Road Conditions:	4 lane					
Structure Type:	bridge		Multi Chambers?	no		Structure Material	concrete		
Bottom Type:	hard armored, dirt water								
Height(m):	1.38	Width (m)	35.89	Length (m):	21.10	Openness Ratio:	2.3	Constraints	yes
Description of Constraints	Narrow, Height								
Access Logistics	accessible but heavy human use; parking on northwest side								
Fencing:	Fencing on south side only (east and west)								
Camera Options:	potentially above sewer pipe								
Tracking Potential	no								
Species/Sign Observed:	none								
	squirrel, raccoon tracks								

## DESCRIPTION OF VEGETATION EW1-3

N or E Entrance	Veg. Thickness	open	Dominant Vegetation Type	Shrubs		
Cover Classes at 20	Shrubs	2 (6-25%)	Grass/Herbs	0 (less than 1%)	Trees:	0 (less than 1%)
	Bare/Rock:	2 (6-25%)	Native Species:	2 (6-25%)	Exotic Species	1 (1-5%)
S or W Entranc	Veg. Thickness	moderately open	Dominant Vegetation Typ	Shrubs		
Cover Classes at 20	Shrubs		Grass/Herb		Trees:	
	Bare/Rock:		Native Species:		Exotic Species	
Veg. Comments:						

## THREATS AND MANAGEMENT RECOMMENDATIONS EW1-3

Primary Threat:	undercrossing bottom permanently wet	Severity	5 (severe/imminent)
Secondary Threat:	other human use	Severity	5 (severe/imminent)
Mgmt Recommendations			
Comments:			
	MHCP Monitoring Priority		



# HMP Wildlife Movement Pinchpoint Description

## LOCATION DESCRIPTION

Corridor	EW1	Point Code:	EW1-4	Assessment Date	8/22/2013	Surveyors:	M. Grim, V. Mai		
Latitude:	33.18033296200	Longitude:	-117.32875591100	GPS Datum:	WGS 84				
Nearest River:	Buena Vista Creek								
Nearest Road	W of El Camino Real			Road Conditions:	2 lane				
Structure Type:	bridge		Multi Chambers?	no	Structure Material	concrete			
Bottom Type:	hard armored, water								
Height(m):	1.07	Width (m)	21.03	Length (m):	12.19	Openness Ratio:	1.8	Constraints	yes
Description of Constraints	Narrow, Height								
Access Logistics	accessible but heavy human use; parking at mall								
Fencing:	Fencing on north west side								
Camera Options:	no								
Tracking Potential	no								
Species/Sign Observed:	none								

## DESCRIPTION OF VEGETATION EW1-4

N or E Entrance	Veg. Thickness	moderately blocked	Dominant Vegetation Type	Tree		
Cover Classes at 20	Shrubs	1 (1-5%)	Grass/Herbs	0 (less than 1%)	Trees:	2 (6-25%)
	Bare/Rock:	2 (6-25%)	Native Species:	2 (6-25%)	Exotic Species	1 (1-5%)
S or W Entranc	Veg. Thickness	moderately open	Dominant Vegetation Typ	short grasses		
Cover Classes at 20	Shrubs		Grass/Herb		Trees:	
	Bare/Rock:		Native Species:		Exotic Species	
Veg. Comments:						

## THREATS AND MANAGEMENT RECOMMENDATIONS EW1-4

Primary Threat:	undercrossing bottom permanently wet	Severity	5 (severe/imminent)
Secondary Threat:	other human use	Severity	4 (high)
Mgmt Recommendations			
Comments:			

# HMP Wildlife Movement Pinchpoint Description

## LOCATION DESCRIPTION

Corridor	EW1	Point Code:	EW1-5	Assessment Date	8/22/2013	Surveyors:	M. Grim, V. Mai		
Latitude:	33.18060043800		Longitude:	-117.32679110600		GPS Datum:	WGS 84		
Nearest River:	Buena Vista Creek								
Nearest Road	El Camino Real		Road Conditions:	8 lanes, 6" curb median					
Structure Type:	bridge		Multi Chambers?	no		Structure Material	concrete		
Bottom Type:	sand, gravel, trash, water, hard-armored								
Height(m):	3.66	Width (m)	28.80	Length (m):	36.29	Openness Ratio:	2.9	Constraints	yes
Description of Constraints	Narrow on south side, no vegetative cover								
Access Logistics	accessible but heavy human use; parking at shopping center								
Fencing:	None								
Camera Options:	on ceiling, high up								
Tracking Potential	yes								
Species/Sign Observed:	none								

## DESCRIPTION OF VEGETATION EW1-5

N or E Entrance	Veg. Thickness	open	Dominant Vegetation Type	None		
Cover Classes at 20	Shrubs	1 (1-5%)	Grass/Herbs	0 (less than 1%)	Trees:	1 (1-5%)
	Bare/Rock:	2 (6-25%)	Native Species:	1 (1-5%)	Exotic Species	1 (1-5%)
S or W Entranc	Veg. Thickness	open	Dominant Vegetation Typ	none		
Cover Classes at 20	Shrubs		Grass/Herb		Trees:	
	Bare/Rock:		Native Species:		Exotic Species	
Veg. Comments:						

## THREATS AND MANAGEMENT RECOMMENDATIONS EW1-5

Primary Threat:	undercrossing bottom permanently wet	Severity	5 (severe/imminent)
Secondary Threat:	other human use	Severity	5 (severe/imminent)
Mgmt Recommendations	increase size of ledge on south side concurrent with any road improvements		
Comments:			
MHCP Monitoring Priority			



# HMP Wildlife Movement Pinchpoint Description

## LOCATION DESCRIPTION

Corridor	EW1	Point Code:	EW1-6	Assessment Date	8/22/2013	Surveyors:	M. Grim, V. Mai		
Latitude:	33.18149319100		Longitude:	-117.32160999000		GPS Datum:	WGS 84		
Nearest River:	Buena Vista Creek								
Nearest Road	Haymar Drive		Road Conditions:	2 lane					
Structure Type:	bridge		Multi Chambers?	no		Structure Material	concrete		
Bottom Type:	dirt, mud, water, hard-armored								
Height(m):	1.45	Width (m)	22.86	Length (m):	10.97	Openness Ratio:	3.0	Constraints	yes
Description of Constraints	Netting and fencing from golf course, excessive vegetation								
Access Logistics	accessible but highly vegetated; parking adjacent on northeast side; High potential for camera								
Fencing:	Golf course netting, no fencing adjacent to bridge								
Camera Options:	anywhere								
Tracking Potential	yes								
Species/Sign Observed:	none								
	Raccoon tracks								

## DESCRIPTION OF VEGETATION EW1-6

N or E Entrance	Veg. Thickness	moderately open	Dominant Vegetation Type	tall grasses/forbs			
Cover Classes at 20	Shrubs	3 (26-50%)	Grass/Herbs	1 (1-5%)	Trees:	1 (1-5%)	
	Bare/Rock:	1 (1-5%)	Native Species:	3 (26-50%)	Exotic Species	2 (6-25%)	
S or W Entranc	Veg. Thickness	moderately blocked	Dominant Vegetation Typ	tall grasses/forbs			
Cover Classes at 20	Shrubs		Grass/Herb		Trees:		
	Bare/Rock:		Native Species:		Exotic Species		
Veg. Comments:							

## THREATS AND MANAGEMENT RECOMMENDATIONS EW1-6

Primary Threat:	vegetation choking one or both entrances	Severity	3 (moderate)
Secondary Threat:	undercrossing bottom permanently we	Severity	3 (moderate)
Mgmt Recommendations	clear excessive vegetation		
Comments:			
	Other priority		

# HMP Wildlife Movement Pinchpoint Description

## LOCATION DESCRIPTION

Corridor	EW1	Point Code:	EW1-7	Assessment Date		Surveyors:	
Latitude:	33.17931248400		Longitude:	-117.30018431700		GPS Datum:	WGS 84
Nearest River:	Buena Vista Creek						
Nearest Road	S of Hwy 78			Road Conditions:			
Structure Type:			Multi Chambers?		Structure Material		
Bottom Type:							
Height(m):		Width (m)		Length (m):		Openness Ratio:	
Description of Constraints							
Access Logistics							
Fencing:							
Camera Options:							
Tracking Potential							
Species/Sign Observed:							

## DESCRIPTION OF VEGETATION EW1-7

N or E Entrance	Veg. Thickness		Dominant Vegetation Type			
Cover Classes at 20	Shrubs		Grass/Herbs		Trees:	
	Bare/Rock:		Native Species:		Exotic Species	
S or W Entranc	Veg. Thickness		Dominant Vegetation Typ			
Cover Classes at 20	Shrubs		Grass/Herb		Trees:	
	Bare/Rock:		Native Species:		Exotic Species	
Veg. Comments:						

## THREATS AND MANAGEMENT RECOMMENDATIONS EW1-7

Primary Threat:	human use	Severity	4 (high)
Secondary Threat:	surrounding area highly disturbed or developed	Severity	3 (moderate)
Mgmt Recommendations	complete current restoration activities		
Comments:			
Not visited			



# HMP Wildlife Movement Pinchpoint Description

## LOCATION DESCRIPTION

Corridor	EW2	Point Code:	EW2-1	Assessment Date	8/13/2013	Surveyors:	R. Humphrey, J. Henry, ESA
Latitude:	33.15033846100		Longitude:	-117.29935400500		GPS Datum:	WGS 84
Nearest River:	offshoot of Agua Hedionda Creek						
Nearest Road	Cannon Road		Road Conditions:	near very busy intersection			
Structure Type:	box culvert with apron		Multi Chambers?	no		Structure Material	concrete
Bottom Type:	water						
Height(m):		Width (m)		Length (m):		Openness Ratio:	
Description of Constraints							
Access Logistics	Robertson Ranch easiest access						
Fencing:	N. side temporary fencing for restoration project keeps WL from road; S. side chain link all the way, no gaps						
Camera Options:	would have to be careful; standing water in dry season						
Tracking Potential	no						
Species/Sign Observed:	none						

## DESCRIPTION OF VEGETATION EW2-1

N or E Entrance	Veg. Thickness	moderately blocked	Dominant Vegetation Type	tall grasses/forbs			
Cover Classes at 20	Shrubs	2 (6-25%)	Grass/Herbs	5 (76-100%)	Trees:	1 (1-5%)	
	Bare/Rock:	0 (less than 1%)	Native Species:	4 (51-75%)	Exotic Species	2 (6-25%)	
S or W Entranc	Veg. Thickness	blocked	Dominant Vegetation Typ	trees			
Cover Classes at 20	Shrubs	1 (1-5%)	Grass/Herb	2 (6-25%)	Trees:	5 (76-100%)	
	Bare/Rock:	1 (1-5%)	Native Species:	5 (76-100%)	Exotic Species	1 (1-5%)	
Veg. Comments:	S side opens up into CDFW ecological reserve; N side on Robertson Ranch Preserve.						

## THREATS AND MANAGEMENT RECOMMENDATIONS EW2-1

Primary Threat:	undercrossing bottom permanently wet	Severity	5 (severe/imminent)
Secondary Threat:	vegetation choking one or both entrances	Severity	5 (severe/imminent)
Mgmt Recommendations	dredge out sediment to allow for more flow;		
	create dry area where wildlife can travel;		
Comments:			
	MHCP Monitoring Priority		

# HMP Wildlife Movement Pinchpoint Description

## LOCATION DESCRIPTION

Corridor	EW2	Point Code:	EW2-2	Assessment Date		Surveyors:	
Latitude:	33.15448102300		Longitude:	-117.29741328200		GPS Datum:	WGS 84
Nearest River:	unnamed drainage						
Nearest Road	Four Peaks Street			Road Conditions:	none		
Structure Type:	at grade crossing		Multi Chambers?			Structure Material	
Bottom Type:							
Height(m):		Width (m)		Length (m):		Openness Ratio:	
Description of Constraints							
Access Logistics							
Fencing:	none						
Camera Options:							
Tracking Potential							
Species/Sign Observed:							

## DESCRIPTION OF VEGETATION EW2-2

N or E Entrance	Veg. Thickness	moderately open		Dominant Vegetation Type	shrubs		
Cover Classes at 20	Shrubs			Grass/Herbs			
	Bare/Rock:			Native Species:			
				Exotic Species			
S or W Entranc	Veg. Thickness	moderately open		Dominant Vegetation Typ	shrubs		
Cover Classes at 20	Shrubs			Grass/Herb			
	Bare/Rock:			Native Species:			
				Exotic Species			
Veg. Comments:							

## THREATS AND MANAGEMENT RECOMMENDATIONS EW2-2

Primary Threat:	gaps in fencing		Severity	5 (severe/imminent)	
Secondary Threat:	busy roadway		Severity	4 (severe/imminent)	
Mgmt Recommendations	close gaps in fencing; clear out vegetation as needed				
Comments:					
not constrained					



# HMP Wildlife Movement Pinchpoint Description

## LOCATION DESCRIPTION

Corridor	EW2	Point Code:	EW2-3	Assessment Date	8/13/2013	Surveyors:	R. Humphrey, J. Henry, ESA		
Latitude:	33.15802053400		Longitude:	-117.29035551500		GPS Datum:	WGS 84		
Nearest River:	upland								
Nearest Road	College Blvd		Road Conditions:	busy 4-lane divided roadway					
Structure Type:	arch culvert		Multi Chambers?	no		Structure Material	metal		
Bottom Type:	dirt, debris								
Height(m):	1.90	Width (m)	3.70	Length (m):	49.30	Openness Ratio:	0.1	Constraints	
Description of Constraints									
Access Logistics	accessible by city trail; no obvious signs of human use. New high school opening to the east, might draw kids to								
Fencing:	W-chain link, gap on N side; E chain link (gap on one side) and 3-wire								
Camera Options:	CNLM mounted camera in middle of tunnel								
Tracking Potential	moderate								
Species/Sign Observed:	Coyote								
	skunk; roadrunner; squirrel; rabbit; opossum; raccoon								

## DESCRIPTION OF VEGETATION EW2-3

N or E Entrance	Veg. Thickness	open	Dominant Vegetation Type	short grasses/forbs		
Cover Classes at 20	Shrubs	5 (76-100%)	Grass/Herbs	2 (6-25%)	Trees:	0 (less than 1%)
	Bare/Rock:	1 (1-5%)	Native Species:	5 (76-100%)	Exotic Species	2 (6-25%)
S or W Entranc	Veg. Thickness	open	Dominant Vegetation Typ	short grasses/forbs		
Cover Classes at 20	Shrubs	2 (6-25%)	Grass/Herb	5 (76-100%)	Trees:	0 (less than 1%)
	Bare/Rock:	1 (1-5%)	Native Species:	5 (76-100%)	Exotic Species	2 (6-25%)
Veg. Comments:						

## THREATS AND MANAGEMENT RECOMMENDATIONS EW2-3

Primary Threat:	busy roadway	Severity	3 (moderate)
Secondary Threat:	gaps in fencing	Severity	3 (moderate)
Mgmt Recommendations	close gaps in fencing		
Comments:			
	CNLM determined in brief camera work that this tunnel is very functional		

# HMP Wildlife Movement Pinchpoint Description

## LOCATION DESCRIPTION

Corridor	EW2	Point Code:	EW2-4	Assessment Date	8/13/2013	Surveyors:	R. Humphrey, J. Henry, ESA		
Latitude:	33.14888727700		Longitude:	-117.29788174800		GPS Datum:	WGS 84		
Nearest River:	Agua Hedionda Creek								
Nearest Road	Cannon Road		Road Conditions:	near very busy intersection					
Structure Type:	bridge		Multi Chambers?	2 rows		Structure Material	concrete		
Bottom Type:	sand, dirt, mud, rip-rap, water, debris								
Height(m):		Width (m)	38.30	Length (m):	30.20	Openness Ratio:		Constraints	potential
Description of Constraints	may flood during wet season								
Access Logistics	fairly easy access, but lots of human visitation								
Fencing:	W entrance -chain link, no gaps; E entrance - south side concrete wall; small gap near bridge (11 m); north side								
Camera Options:	excellent for camera; careful about seasonal flooding and heavy human use								
Tracking Potential	yes								
Species/Sign Observed:	coyote, raccoon, skunk, deer, rodent, lizard								
	woodrat nest nearby								

## DESCRIPTION OF VEGETATION EW2-4

N or E Entrance	Veg. Thickness	blocked	Dominant Vegetation Type	trees		
Cover Classes at 20	Shrubs	1 (1-5%)	Grass/Herbs	1 (1-5%)	Trees:	5 (76-100%)
	Bare/Rock:	1 (1-5%)	Native Species:	5 (76-100%)	Exotic Species	1 (1-5%)
S or W Entranc	Veg. Thickness	moderately blocked	Dominant Vegetation Typ	trees		
Cover Classes at 20	Shrubs	1 (1-5%)	Grass/Herb	3 (26-50%)	Trees:	5 (76-100%)
	Bare/Rock:	1 (1-5%)	Native Species:	5 (76-100%)	Exotic Species	2 (6-25%)
Veg. Comments:						

## THREATS AND MANAGEMENT RECOMMENDATIONS EW2-4

Primary Threat:	high human use	Severity	5 (severe/imminent)
Secondary Threat:	busy roadway	Severity	4 (severe/imminent)
Mgmt Recommendations	close gaps in fencing		
Comments:			
	MHCP Monitoring Priority		



# HMP Wildlife Movement Pinchpoint Description

## LOCATION DESCRIPTION

Corridor	EW2	Point Code:	EW2-5	Assessment Date	8/13/2013	Surveyors:	R. Humphrey, J. Henry, ESA		
Latitude:	33.14929522200		Longitude:	-117.29684784100		GPS Datum:	WGS 84		
Nearest River:	Agua Hedionda Creek toward EW2-6								
Nearest Road	El Camino Real		Road Conditions:	near very busy intersection					
Structure Type:	bridge		Multi Chambers?	2 rows		Structure Material	concrete		
Bottom Type:	sand, mud, water								
Height(m):		Width (m)	20.10	Length (m):	32.30	Openness Ratio:		Constraints	
Description of Constraints									
Access Logistics	lots of human use and traffic; easily accessible								
Fencing:	N end: chain link, gap both sides of creek; S end no fencing								
Camera Options:	glue in middle up high? Watch for storm flows								
Tracking Potential	yes								
Species/Sign Observed:	raccoon, skunk, rodent								
	human, heron, other waterfowl, lots of bats living in cracks								

## DESCRIPTION OF VEGETATION EW2-5

N or E Entrance	Veg. Thickness	open	Dominant Vegetation Type	short grasses/forbs		
Cover Classes at 20	Shrubs	1 (1-5%)	Grass/Herbs	5 (76-100%)	Trees:	1 (1-5%)
	Bare/Rock:	0 (less than 1%)	Native Species:	2 (6-25%)	Exotic Species	5 (76-100%)
S or W Entranc	Veg. Thickness	blocked	Dominant Vegetation Typ	trees		
Cover Classes at 20	Shrubs	2 (6-25%)	Grass/Herb	2 (6-25%)	Trees:	5 (76-100%)
	Bare/Rock:	1 (1-5%)	Native Species:	5 (76-100%)	Exotic Species	1 (1-5%)
Veg. Comments:						

## THREATS AND MANAGEMENT RECOMMENDATIONS EW2-5

Primary Threat:	undercrossing bottom permanently wet	Severity	2 (low)
Secondary Threat:	other human use	Severity	2 (low)
Mgmt Recommendations			
Comments:			
	MHCP Monitoring Priority		

# HMP Wildlife Movement Pinchpoint Description

## LOCATION DESCRIPTION

Corridor	M2a	Point Code:	EW2-5b	Assessment Date	8/13/2013	Surveyors:	R. Humphrey, J. Henry, ESA		
Latitude:	33.14994300000		Longitude:	-117.29725400000		GPS Datum:	WGS 84		
Nearest River:	upland								
Nearest Road	Cannon Road		Road Conditions:	near very busy intersection					
Structure Type:	box culvert without apron		Multi Chambers?	3		Structure Material	concrete		
Bottom Type:	hard-armored								
Height(m):	1.20	Width (m)	9.60	Length (m):	45.40	Openness Ratio:	0.3	Constraints	
Description of Constraints									
Access Logistics	small access road to E entrance; open on W entrance but blocked with veg								
Fencing:	One opening within constrained corridor-concrete wall on 1 side, chain link on other; other end opens into Robe								
Camera Options:	probably not good for camera; probably not used - too constricted								
Tracking Potential	no								
Species/Sign Observed:	none								

## DESCRIPTION OF VEGETATION EW2-5b

N or E Entrance	Veg. Thickness	none	Dominant Vegetation Type			
Cover Classes at 20	Shrubs	3 (26-50%)	Grass/Herbs	3 (26-50%)	Trees:	2 (6-25%)
	Bare/Rock:	4 (51-75%)	Native Species:	3 (26-50%)	Exotic Species	4 (51-75%)
S or W Entranc	Veg. Thickness	blocked	Dominant Vegetation Typ	tall grasses/forbs		
Cover Classes at 20	Shrubs	2 (6-25%)	Grass/Herb	4 (51-75%)	Trees:	1 (1-5%)
	Bare/Rock:	1 (1-5%)	Native Species:	2 (6-25%)	Exotic Species	4 (51-75%)
Veg. Comments:	W end opens into restoration site on Robertson Ranch E Preserve					

## THREATS AND MANAGEMENT RECOMMENDATIONS EW2-5b

Primary Threat:	undercrossing very low and dark	Severity	5 (severe/imminent)
Secondary Threat:	vegetation choking one or both entrances	Severity	3 (moderate)
Mgmt Recommendations	dredge out sediment?		
	clear out vegetation at blocked end?		
Comments:	just N of M2-5; under Cannon road into Robertson Ranch preserve		



# HMP Wildlife Movement Pinchpoint Description

## LOCATION DESCRIPTION

Corridor	M2a	Point Code:	EW2-5c	Assessment Date	8/13/2013	Surveyors:	R. Humphrey, J. Henry, ESA		
Latitude:	33.15041400000		Longitude:	-117.29701700000		GPS Datum:	WGS 84		
Nearest River:	upland								
Nearest Road	Cannon Road		Road Conditions:	near very busy intersection					
Structure Type:	pipe		Multi Chambers?	no		Structure Material	concrete		
Bottom Type:	hard-armored								
Height(m):	2.00	Width (m)	2.00	Length (m):		Openness Ratio:		Constraints	yes
Description of Constraints	very long and dark; too long to measure								
Access Logistics	small access road to E entrance; open on W entrance but blocked with veg								
Fencing:	One opening within constrained corridor-concrete wall on 1 side, chain link on other; other end opens into Robe								
Camera Options:	not good for camera								
Tracking Potential	low potential								
Species/Sign Observed:									
	live squirrel								

## DESCRIPTION OF VEGETATION EW2-5c

N or E Entrance	Veg. Thickness		Dominant Vegetation Type			
Cover Classes at 20	Shrubs		Grass/Herbs		Trees:	
	Bare/Rock:		Native Species:		Exotic Species	
S or W Entranc	Veg. Thickness	blocked	Dominant Vegetation Typ	short grasses/forbs		
Cover Classes at 20	Shrubs	2 (6-25%)	Grass/Herb	4 (51-75%)	Trees:	1 (1-5%)
	Bare/Rock:	1 (1-5%)	Native Species:	2 (6-25%)	Exotic Species	4 (51-75%)
Veg. Comments:	W end opens into restoration site on Robertson Ranch E Preserve					

## THREATS AND MANAGEMENT RECOMMENDATIONS EW2-5c

Primary Threat:	undercrossing very long	Severity	5 (severe/imminent)
Secondary Threat:	cannot see to other end of the undercrossing	Severity	5 (severe/imminent)
Mgmt Recommendations	wildlife not likely to use this undercrossing		
Comments:	close to M2-5b W entrance; can't tell where it ends up; under cannon but does not open up near M2-5b on E side.		

# HMP Wildlife Movement Pinchpoint Description

## LOCATION DESCRIPTION

Corridor	EW2	Point Code:	EW2-6	Assessment Date	8/16/2013	Surveyors:	J. Henry, D. Dirks, ESA		
Latitude:	33.14869326900	Longitude:	-117.28919539600	GPS Datum:	WGS 84				
Nearest River:	Agua Hedionda Creek								
Nearest Road	W of Rancho Carlsbad Drive		Road Conditions:	2-lane, undivided, very low traffic, residential					
Structure Type:	bridge		Multi Chambers?	no		Structure Material	concrete		
Bottom Type:	dirt, rip-rap, hard-armored, vegetation present, water								
Height(m):	4.00	Width (m)	25.80	Length (m):	12.00	Openness Ratio:	8.6	Constraints	no
Description of Constraints									
Access Logistics	Access from residential community								
Fencing:	none								
Camera Options:	Crossing may be too wide for camera mounting. Low human visitation. Bridge offers many locations to mount.								
Tracking Potential	no								
Species/Sign Observed:	other								
	snowy egret								

## DESCRIPTION OF VEGETATION EW2-6

N or E Entrance	Veg. Thickness	open	Dominant Vegetation Type	short grasses/forbs			
Cover Classes at 20	Shrubs	2 (6-25%)	Grass/Herbs	3 (26-50%)	Trees:	2 (6-25%)	
	Bare/Rock:	3 (26-50%)	Native Species:	1 (1-5%)	Exotic Species	4 (51-75%)	
S or W Entranc	Veg. Thickness	open	Dominant Vegetation Typ	short grasses/forbs			
Cover Classes at 20	Shrubs	2 (6-25%)	Grass/Herb	2 (6-25%)	Trees:	2 (6-25%)	
	Bare/Rock:	3 (26-50%)	Native Species:	1 (1-5%)	Exotic Species	4 (51-75%)	
Veg. Comments:							

## THREATS AND MANAGEMENT RECOMMENDATIONS EW2-6

Primary Threat:	lack of native vegetation surrounding one or both entrances	Severity	2 (low)
Secondary Threat:	undercrossing bottom permanently wet	Severity	2 (low)
Mgmt Recommendations	potentially plant native vegetation		
Comments:	crossing is generally good for wildlife despite lack of native vegetation and presence of water.		



# HMP Wildlife Movement Pinchpoint Description

## LOCATION DESCRIPTION

Corridor	EW2	Point Code:	EW2-7	Assessment Date	8/16/2013	Surveyors:	J. Henry, D. Dirks, ESA		
Latitude:	33.14858136100	Longitude:	-117.28826635000	GPS Datum:	WGS 84				
Nearest River:	Agua Hedionda Creek								
Nearest Road	Rancho Carlsbad Drive		Road Conditions:	2-lane, undivided, very low traffic, residential					
Structure Type:	bridge		Multi Chambers?	three c		Structure Material	concrete		
Bottom Type:	sand, rip-rap, vegetation present, water								
Height(m):	3.50	Width (m)	3.70	Length (m):	14.50	Openness Ratio:	0.9	Constraints	yes
Description of Constraints	Dense vegetation within E chamber, standing water within W chamber								
Access Logistics	Access from residential community								
Fencing:	none								
Camera Options:	Middle chamber best option for camera, no signs of human visitation outside of golf course.								
Tracking Potential	moderate potential								
Species/Sign Observed:	raccoon								
	small mammal								

## DESCRIPTION OF VEGETATION EW2-7

N or E Entrance	Veg. Thickness	moderately open	Dominant Vegetation Type	tall grasses/forbs			
Cover Classes at 20	Shrubs	0 (less than 1%)	Grass/Herbs	4 (51-75%)	Trees:	0 (less than 1%)	
	Bare/Rock:	3 (26-50%)	Native Species:	1 (1-5%)	Exotic Species	4 (51-75%)	
S or W Entranc	Veg. Thickness	open	Dominant Vegetation Typ	short grasses/forbs			
Cover Classes at 20	Shrubs	2 (6-25%)	Grass/Herb	4 (51-75%)	Trees:	2 (6-25%)	
	Bare/Rock:	1 (1-5%)	Native Species:	1 (1-5%)	Exotic Species	5 (76-100%)	
Veg. Comments:	Very low cover of natives, almost exclusively ornamental/non-native species around entrances						

## THREATS AND MANAGEMENT RECOMMENDATIONS EW2-7

Primary Threat:	undercrossing bottom permanently wet	Severity	3 (moderate)
Secondary Threat:	vegetation choking one or both entrances	Severity	2 (low)
Mgmt Recommendations	Install elevated platform to allow for wildlife movement over standing water.		
	Clear vegetation obstructing E chamber.		
Comments:			

# HMP Wildlife Movement Pinchpoint Description

## LOCATION DESCRIPTION

Corridor	EW2	Point Code:	EW2-8a	Assessment Date	8/16/2013	Surveyors:	J. Henry, D. Dirks, ESA		
Latitude:	33.14864500000	Longitude:	-117.28648000000	GPS Datum:	WGS 84				
Nearest River:	Agua Hedionda Creek								
Nearest Road	Rancho Carlsbad golf course		Road Conditions:	golf-cart traffic along cart path/bridge					
Structure Type:	bridge	Multi Chambers?	no	Structure Material	concrete				
Bottom Type:	sand, vegetation present, water								
Height(m):	3.30	Width (m)	12.00	Length (m):	2.60	Openness Ratio:	15.2	Constraints	potential
Description of Constraints	Presence of dense vegetation								
Access Logistics	Access through golf course/residential community								
Fencing:	none								
Camera Options:	Can mount on underside of bridge, low human visitation under bridge. Wildlife likely use golf course for movem								
Tracking Potential	low potential								
Species/Sign Observed:	none								

## DESCRIPTION OF VEGETATION EW2-8a

N or E Entrance	Veg. Thickness	moderately open	Dominant Vegetation Type	tall grasses/forbs		
Cover Classes at 20	Shrubs	2 (6-25%)	Grass/Herbs	4 (51-75%)	Trees:	1 (1-5%)
	Bare/Rock:	2 (6-25%)	Native Species:	2 (6-25%)	Exotic Species	4 (51-75%)
S or W Entranc	Veg. Thickness	moderately open	Dominant Vegetation Typ	short grasses/forbs		
Cover Classes at 20	Shrubs	2 (6-25%)	Grass/Herb	3 (26-50%)	Trees:	2 (6-25%)
	Bare/Rock:	3 (26-50%)	Native Species:	1 (1-5%)	Exotic Species	4 (51-75%)
Veg. Comments:						

## THREATS AND MANAGEMENT RECOMMENDATIONS EW2-8a

Primary Threat:	vegetation choking one or both entrances	Severity	2 (low)
Secondary Threat:	undercrossing bottom permanently wet	Severity	2 (low)
Mgmt Recommendations	none		
Comments:	not much constraining wildlife despite presence of vegetation/water.		



# HMP Wildlife Movement Pinchpoint Description

## LOCATION DESCRIPTION

Corridor	EW2	Point Code:	EW2-8b	Assessment Date	8/16/2013	Surveyors:	J. Henry, D. Dirks, ESA		
Latitude:	33.14864500000		Longitude:	-117.28648000000		GPS Datum:	WGS 84		
Nearest River:	Agua Hedionda Creek								
Nearest Road	Rancho Carlsbad golf course		Road Conditions:	golf-cart traffic along cart path/bridge					
Structure Type:	bridge		Multi Chambers?	no		Structure Material	concrete		
Bottom Type:	dirt, vegetation present, water								
Height(m):	5.20	Width (m)	10.50	Length (m):	2.50	Openness Ratio:	21.8	Constraints	yes
Description of Constraints	Presence of dense vegetation								
Access Logistics	Access through golf course								
Fencing:	none								
Camera Options:	Bridge provides mounting options. Wildlife likely use golf course for movement.								
Tracking Potential	no								
Species/Sign Observed:	none								

## DESCRIPTION OF VEGETATION EW2-8b

N or E Entrance	Veg. Thickness	moderately blocked		Dominant Vegetation Type	tall grasses/forbs				
Cover Classes at 20	Shrubs	2 (6-25%)		Grass/Herbs	4 (51-75%)		Trees:	1 (1-5%)	
	Bare/Rock:	2 (6-25%)		Native Species:	4 (51-75%)		Exotic Species	2 (6-25%)	
S or W Entranc	Veg. Thickness	moderately blocked		Dominant Vegetation Typ	tall grasses/forbs				
Cover Classes at 20	Shrubs	2 (6-25%)		Grass/Herb	4 (51-75%)		Trees:	1 (1-5%)	
	Bare/Rock:	1 (1-5%)		Native Species:	4 (51-75%)		Exotic Species	3 (26-50%)	
Veg. Comments:									

## THREATS AND MANAGEMENT RECOMMENDATIONS EW2-8b

Primary Threat:	vegetation choking one or both entrances		Severity	3 (moderate)	
Secondary Threat:	undercrossing bottom permanently wet		Severity	2 (low)	
Mgmt Recommendations	potentially thin vegetation.				
Comments:	golf course offers ample opportunity for wildlife movement.				

# HMP Wildlife Movement Pinchpoint Description

## LOCATION DESCRIPTION

Corridor	EW2	Point Code:	EW2-9	Assessment Date	8/16/2013	Surveyors:	J. Henry, D. Dirks, ESA		
Latitude:	33.13833857500	Longitude:	-117.25769465200	GPS Datum:	WGS 84				
Nearest River:	Agua Hedionda Creek								
Nearest Road	Faraday Avenue		Road Conditions:	4-lane, undivided, heavy traffic					
Structure Type:	arch culvert		Multi Chambers?	no		Structure Material	metal		
Bottom Type:	dirt, vegetation present								
Height(m):	3.25	Width (m)	6.50	Length (m):	35.50	Openness Ratio:	0.6	Constraints	no
Description of Constraints									
Access Logistics	Access from business parks; no parking along El Camino Real.								
Fencing:	Boundary with El Camino Real not fenced; aprons have chain link; temporary (orange snow) fencing located per								
Camera Options:	Existing camera boxes present at N side of crossing; graffiti noted, relatively high human visitation.								
Tracking Potential	yes								
Species/Sign Observed:	coyote, raccoon								
	bobcat (potential)								

## DESCRIPTION OF VEGETATION EW2-9

N or E Entrance	Veg. Thickness	moderately blocked	Dominant Vegetation Type	shrubs		
Cover Classes at 20	Shrubs	3 (26-50%)	Grass/Herbs	2 (6-25%)	Trees:	3 (26-50%)
	Bare/Rock:	2 (6-25%)	Native Species:	4 (51-75%)	Exotic Species	2 (6-25%)
S or W Entranc	Veg. Thickness	moderately open	Dominant Vegetation Typ	shrubs		
Cover Classes at 20	Shrubs	2 (6-25%)	Grass/Herb	3 (26-50%)	Trees:	2 (6-25%)
	Bare/Rock:	2 (6-25%)	Native Species:	3 (26-50%)	Exotic Species	2 (6-25%)
Veg. Comments:	Areas immediately around entrances dominated by NNG.					

## THREATS AND MANAGEMENT RECOMMENDATIONS EW2-9

Primary Threat:	no fencing to guide wildlife away from road	Severity	3 (moderate)
Secondary Threat:	busy roadway	Severity	3 (moderate)
Mgmt Recommendations	Install fencing		
	thin vegetation on each side of tunnel		
Comments:	concrete drainage ditch along W side of crossing; culvert leaking water; drainage basin W possibly only drains road run-off.		
	Other priority		



# HMP Wildlife Movement Pinchpoint Description

## LOCATION DESCRIPTION

Corridor	EW2	Point Code:	EW2-10	Assessment Date	8/16/2013	Surveyors:	J. Henry, D. Dirks, ESA		
Latitude:	33.13467700000		Longitude:	-117.24399200000		GPS Datum:	WGS 84		
Nearest River:	Agua Hedionda Creek								
Nearest Road	Melrose Drive near Lionshead avenue		Road Conditions:	4-lane, undivided, moderate traffic					
Structure Type:	arch culvert		Multi Chambers?	no		Structure Material	metal		
Bottom Type:	dirt, mud, vegetation present								
Height(m):	3.50	Width (m)	7.00	Length (m):	52.60	Openness Ratio:	0.5	Constraints	no
Description of Constraints									
Access Logistics	Access from several business parks nearby								
Fencing:	No fencing along roadway; aprons have chain link fencing. Temporary (orange snow) fencing is present perpendi								
Camera Options:	Potential to mount throughout the culvert; low/moderate human visitation, some graffiti notice on E apron.								
Tracking Potential	yes								
Species/Sign Observed:	coyote, raccoon								

## DESCRIPTION OF VEGETATION EW2-10

N or E Entrance	Veg. Thickness	open	Dominant Vegetation Type	short grasses/forbs		
Cover Classes at 20	Shrubs	2 (6-25%)	Grass/Herbs	3 (26-50%)	Trees:	2 (6-25%)
	Bare/Rock:	3 (26-50%)	Native Species:	3 (26-50%)	Exotic Species	3 (26-50%)
S or W Entranc	Veg. Thickness	moderately open	Dominant Vegetation Typ	shrubs		
Cover Classes at 20	Shrubs	4 (51-75%)	Grass/Herb	2 (6-25%)	Trees:	2 (6-25%)
	Bare/Rock:	1 (1-5%)	Native Species:	4 (51-75%)	Exotic Species	3 (26-50%)
Veg. Comments:	Drainage ditch observed along N end					

## THREATS AND MANAGEMENT RECOMMENDATIONS EW2-10

Primary Threat:	no fencing to guide wildlife away from road	Severity	5 (severe/imminent)
Secondary Threat:	busy roadway	Severity	4 (severe/imminent)
Mgmt Recommendations	Install fencing		
Comments:			
	Other priority		

# HMP Wildlife Movement Pinchpoint Description

## LOCATION DESCRIPTION

Corridor	EW3	Point Code:	EW3-1	Assessment Date	8/19/2013	Surveyors:	M. Spiegelberg		
Latitude:	33.08782400000	Longitude:	-117.26927900000	GPS Datum:	WGS 84				
Nearest River:	San Marcos Creek/Batiquitos Lagoon								
Nearest Road	El Camino Real		Road Conditions:	Divided roadway with two or more lanes each					
Structure Type:	bridge		Multi Chambers?		Structure Material	Concrete			
Bottom Type:	mud, water								
Height(m):	2.50	Width (m)	50.00	Length (m):	30.00	Openness Ratio:	4.2	Constraints	Yes
Description of Constraints	Water at high tide; Low bridge openings								
Access Logistics	Mud good for tracking								
Fencing:	None								
Camera Options:	Too much human use								
Tracking Potential	Yes								
Species/Sign Observed:	coyote, raccoon, skunk, opossum, rabbit, rodent, lizard or snake								
	egret								

## DESCRIPTION OF VEGETATION EW3-1

N or E Entrance	Veg. Thickness	moderately open	Dominant Vegetation Type	trees		
Cover Classes at 20	Shrubs	1 (1-5%)	Grass/Herbs	1 (1-5%)	Trees:	1 (1-5%)
	Bare/Rock:	1 (1-5%)	Native Species:	1 (1-5%)	Exotic Species	1 (1-5%)
S or W Entranc	Veg. Thickness	moderately open	Dominant Vegetation Typ	shrubs		
Cover Classes at 20	Shrubs	2 (6-25%)	Grass/Herb	2 (6-25%)	Trees:	1 (1-5%)
	Bare/Rock:	1 (1-5%)	Native Species:	2 (6-25%)	Exotic Species	1 (1-5%)
Veg. Comments:	East side of crossing is an open water channel, with ornamental and native willows along east south side, open grass along north side. West side of crossing is open water channel and marsh vegetation, very open.					

## THREATS AND MANAGEMENT RECOMMENDATIONS EW3-1

Primary Threat:	vehicles	Severity	5 (severe/imminent)
Secondary Threat:	Blocked veg and hi water	Severity	4 (moderate/imminent)
Mgmt Recommendations	fence along El Camino to keep humans out and animals from going onto road; possibly dredge to make		
Comments:	Movement on east side of this underpass needs to be studied in more detail		
	MHCP Monitoring Priority		



# HMP Wildlife Movement Pinchpoint Description

## LOCATION DESCRIPTION

Corridor	EW3	Point Code:	EW3-2	Assessment Date		Surveyors:	
Latitude:	33.08823554800		Longitude:	-117.26298950000		GPS Datum:	WGS 84
Nearest River:	San Marcos Creek						
Nearest Road	N of La Costa Avenue, W of Fairway Lane			Road Conditions:			
Structure Type:	bridge		Multi Chambers?			Structure Material	
Bottom Type:							
Height(m):		Width (m)		Length (m):		Openness Ratio:	
Description of Constraints							
Access Logistics							
Fencing:							
Camera Options:							
Tracking Potential							
Species/Sign Observed:							

## DESCRIPTION OF VEGETATION EW3-2

N or E Entrance	Veg. Thickness	none	Dominant Vegetation Type			
Cover Classes at 20	Shrubs		Grass/Herbs		Trees:	
	Bare/Rock:		Native Species:		Exotic Species	
S or W Entranc	Veg. Thickness	none	Dominant Vegetation Typ			
Cover Classes at 20	Shrubs		Grass/Herb		Trees:	
	Bare/Rock:		Native Species:		Exotic Species	
Veg. Comments:						

## THREATS AND MANAGEMENT RECOMMENDATIONS EW3-2

Primary Threat:	other human use	Severity	3 (moderate)
Secondary Threat:		Severity	
Mgmt Recommendations			
Comments:	active golf course - may not restrict nighttime movement		
	private property; animals can cross at grade with no constraints		

# HMP Wildlife Movement Pinchpoint Description

## LOCATION DESCRIPTION

Corridor	EW3	Point Code:	EW3-3	Assessment Date		Surveyors:	
Latitude:	33.09093393400		Longitude:	-117.25315580800		GPS Datum:	WGS 84
Nearest River:	San Marcos Creek						
Nearest Road	La Costa Resort golf course			Road Conditions:			
Structure Type:	golf cart crossings		Multi Chambers?		Structure Material		
Bottom Type:							
Height(m):		Width (m)		Length (m):		Openness Ratio:	
Description of Constraints							
Access Logistics							
Fencing:							
Camera Options:							
Tracking Potential							
Species/Sign Observed:							

## DESCRIPTION OF VEGETATION EW3-3

N or E Entrance	Veg. Thickness	none	Dominant Vegetation Type			
Cover Classes at 20	Shrubs		Grass/Herbs		Trees:	
	Bare/Rock:		Native Species:		Exotic Species	
S or W Entranc	Veg. Thickness	none	Dominant Vegetation Typ			
Cover Classes at 20	Shrubs		Grass/Herb		Trees:	
	Bare/Rock:		Native Species:		Exotic Species	
Veg. Comments:						

## THREATS AND MANAGEMENT RECOMMENDATIONS EW3-3

Primary Threat:	other human use	Severity	3 (moderate)
Secondary Threat:		Severity	
Mgmt Recommendations			
Comments:	active golf course - may not restrict nighttime movement		
	not constrained; animals can cross at grade		



# HMP Wildlife Movement Pinchpoint Description

## LOCATION DESCRIPTION

Corridor	EW3	Point Code:	EW3-4	Assessment Date	8/19/2013	Surveyors:	M. Spiegelberg		
Latitude:	33.08842300000		Longitude:	-117.24468400000		GPS Datum:	WGS 84		
Nearest River:	San Marcos Creek								
Nearest Road	S of Avenida Valea			Road Conditions:	N/A				
Structure Type:	other		Multi Chambers?	no		Structure Material	Concrete		
Bottom Type:	hard armored, vegetation, water								
Height(m):		Width (m)	150.00	Length (m):		Openness Ratio:		Constraints	Yes
Description of Constraints	Dense vegetation and water								
Access Logistics	Not good tracking.								
Fencing:	None								
Camera Options:	Possible, but many people walk along Gibraltar, not ideal								
Tracking Potential	No								
Species/Sign Observed:	None								

## DESCRIPTION OF VEGETATION EW3-4

N or E Entrance	Veg. Thickness	blocked	Dominant Vegetation Type	trees		
Cover Classes at 20	Shrubs	2 (6-25%)	Grass/Herbs	1 (1-5%)	Trees:	5 (76-100%)
	Bare/Rock:	1 (1-5%)	Native Species:	5 (76-100%)	Exotic Species	1 (1-5%)
S or W Entranc	Veg. Thickness	blocked	Dominant Vegetation Typ	trees		
Cover Classes at 20	Shrubs	2 (6-25%)	Grass/Herb	1 (1-5%)	Trees:	5 (76-100%)
	Bare/Rock:	1 (1-5%)	Native Species:	5 (76-100%)	Exotic Species	1 (1-5%)
Veg. Comments:	Thick willow woodland on each side of cement road.					

## THREATS AND MANAGEMENT RECOMMENDATIONS EW3-4

Primary Threat:	vegetation choking one or both entrances	Severity	5 (severe/imminent)
Secondary Threat:	Water level	Severity	3 (moderate/not imminen
Mgmt Recommendations	thin vegetation or develop path		
Comments:	Most animals can move through this area when there are vegetation openings on each side of the cement road, but sometimes it gets overgrown. Storms knock it down. Unclear if deer move past this point to golf course.		
This is a cement lined road crossing			

# HMP Wildlife Movement Pinchpoint Description

## LOCATION DESCRIPTION

Corridor	EW3	Point Code:	EW3-5	Assessment Date	8/19/2013	Surveyors:	M. Spiegelberg		
Latitude:	33.10409700000	Longitude:	-117.22453300000	GPS Datum:	WGS 84				
Nearest River:	San Marcos Creek								
Nearest Road	Rancho Santa Fe Road near La Costa Meado		Road Conditions:	Divided roadway with two or more lanes each					
Structure Type:	bridge		Multi Chambers?	no		Structure Material	Concrete		
Bottom Type:	dirt, mud, gravel, rip-rap, vegetation, water, trash								
Height(m):	5.10	Width (m)	106.00	Length (m):	51.00	Openness Ratio:	10.6	Constraints	Potential
Description of Constraints	Veg thickening potential								
Access Logistics	Decent tracking. Human use problem for cameras								
Fencing:	None								
Camera Options:	CNLM previously used camera at this location. Very good for wildlife movement; no priority								
Tracking Potential	Yes								
Species/Sign Observed:	deer								

## DESCRIPTION OF VEGETATION EW3-5

N or E Entrance	Veg. Thickness	moderately blocked	Dominant Vegetation Type	trees				
Cover Classes at 20	Shrubs	2 (6-25%)	Grass/Herbs	1 (1-5%)	Trees:	5 (76-100%)		
	Bare/Rock:	2 (6-25%)	Native Species:	5 (76-100%)	Exotic Species	1 (1-5%)		
S or W Entranc	Veg. Thickness	moderately open	Dominant Vegetation Typ	trees				
Cover Classes at 20	Shrubs	2 (6-25%)	Grass/Herb	1 (1-5%)	Trees:	5 (76-100%)		
	Bare/Rock:	1 (1-5%)	Native Species:	5 (76-100%)	Exotic Species	1 (1-5%)		
Veg. Comments:	Sparse vegetation under bridges; moderately dense on south side and north side of bridges, but easy for wildlife movement							

## THREATS AND MANAGEMENT RECOMMENDATIONS EW3-5

Primary Threat:	busy roadway	Severity	3 (moderate/not imminen
Secondary Threat:	Humans	Severity	3 (moderate/not imminen
Mgmt Recommendations	Patrol and keep people out		
Comments:	All animals should be able to move through this area effectively		
	MHCP Monitoring Priority		



# HMP Wildlife Movement Pinchpoint Description

## LOCATION DESCRIPTION

Corridor	EW3	Point Code:	EW3-6a	Assessment Date	8/19/2013	Surveyors:	M. Spiegelberg		
Latitude:	33.09309000000		Longitude:	-117.22457900000		GPS Datum:	WGS 84		
Nearest River:	San Marcos Creek								
Nearest Road	Rancho Santa Fe Road, S of Avenida Soledad		Road Conditions:	Divided roadway with two or more lanes each					
Structure Type:	arch culvert		Multi Chambers?	no		Structure Material	Metal		
Bottom Type:	dirt, hard armored								
Height(m):	3.93	Width (m)	5.25	Length (m):	91.40	Openness Ratio:	0.2	Constraints	No
Description of Constraints	Arch wildlife tunnel								
Access Logistics	Not good for tracking.								
Fencing:	Chain link on each side of RSF Rd. Extends over 100 feet in each direction								
Camera Options:	CNLM mounted cameras in tunnel and outside of tunnel								
Tracking Potential	Not good, hard surface								
Species/Sign Observed:	None								

## DESCRIPTION OF VEGETATION EW3-6a

N or E Entrance	Veg. Thickness	none	Dominant Vegetation Type	short grasses/forbs		
Cover Classes at 20	Shrubs	1 (1-5%)	Grass/Herbs	1 (1-5%)	Trees:	1 (1-5%)
	Bare/Rock:	5 (76-100%)	Native Species:	1 (1-5%)	Exotic Species	1 (1-5%)
S or W Entranc	Veg. Thickness	open	Dominant Vegetation Typ	shrubs		
Cover Classes at 20	Shrubs	2 (6-25%)	Grass/Herb	1 (1-5%)	Trees:	2 (6-25%)
	Bare/Rock:	3 (26-50%)	Native Species:	2 (6-25%)	Exotic Species	1 (1-5%)
Veg. Comments:	Open on east side, mostly open on south side, some willows block a portion of opening on west side					

## THREATS AND MANAGEMENT RECOMMENDATIONS EW3-6a

Primary Threat:	busy roadway	Severity	3 (moderate/not imminen
Secondary Threat:	Long tunnel	Severity	3 (moderate/not imminen
Mgmt Recommendations	Patrol and keep people out		
Comments:	Unclear why deer are not using tunnel; radio collar deer for study in this area		
MHCP Monitoring Priority			

# HMP Wildlife Movement Pinchpoint Description

## LOCATION DESCRIPTION

Corridor	EW3	Point Code:	EW3-6b	Assessment Date		Surveyors:	
Latitude:		Longitude:		GPS Datum:			
Nearest River:							
Nearest Road		Road Conditions:					
Structure Type:		Multi Chambers?		Structure Material			
Bottom Type:							
Height(m):		Width (m)		Length (m):		Openness Ratio:	
						Constraints	
Description of Constraints							
Access Logistics							
Fencing:							
Camera Options:							
Tracking Potential							
Species/Sign Observed:							

## DESCRIPTION OF VEGETATION EW3-6b

N or E Entrance	Veg. Thickness		Dominant Vegetation Type				
Cover Classes at 20	Shrubs		Grass/Herbs		Trees:		
	Bare/Rock:		Native Species:		Exotic Species		
S or W Entranc	Veg. Thickness		Dominant Vegetation Typ				
Cover Classes at 20	Shrubs		Grass/Herb		Trees:		
	Bare/Rock:		Native Species:		Exotic Species		
Veg. Comments:							

## THREATS AND MANAGEMENT RECOMMENDATIONS EW3-6b

Primary Threat:		Severity	
Secondary Threat:		Severity	
Mgmt Recommendations			
Comments:			



# HMP Wildlife Movement Pinchpoint Description

## LOCATION DESCRIPTION

Corridor	EW3	Point Code:	EW3-7	Assessment Date	8/19/2013	Surveyors:	M. Spiegelberg		
Latitude:	33.087500000000		Longitude:	-117.268022000000		GPS Datum:	WGS 84		
Nearest River:	Encinitas Creek								
Nearest Road	La Costa Avenue near El Camino Real		Road Conditions:	Divided roadway with two or more lanes each					
Structure Type:	box culvert with apron		Multi Chambers?	4		Structure Material	Concrete		
Bottom Type:	mud, water								
Height(m):	2.00	Width (m)	17.00	Length (m):		Openness Ratio:		Constraints	Yes
Description of Constraints	Water								
Access Logistics	Mud good for tracking								
Fencing:	None								
Camera Options:									
Tracking Potential	Yes								
Species/Sign Observed:	raccoon								

## DESCRIPTION OF VEGETATION EW3-7

N or E Entrance	Veg. Thickness	blocked	Dominant Vegetation Type	trees		
Cover Classes at 20	Shrubs	1 (1-5%)	Grass/Herbs	1 (1-5%)	Trees:	5 (76-100%)
	Bare/Rock:	1 (1-5%)	Native Species:	5 (76-100%)	Exotic Species	1 (1-5%)
S or W Entranc	Veg. Thickness	blocked	Dominant Vegetation Typ	trees		
Cover Classes at 20	Shrubs	1 (1-5%)	Grass/Herb	1 (1-5%)	Trees:	5 (76-100%)
	Bare/Rock:	1 (1-5%)	Native Species:	5 (76-100%)	Exotic Species	1 (1-5%)
Veg. Comments:	Although vegetation is dense on each entrance at bridge, animal movement should be easy and unconstrained.					

## THREATS AND MANAGEMENT RECOMMENDATIONS EW3-7

Primary Threat:	vegetation choking one or both entrances	Severity	5 (severe/imminent)
Secondary Threat:	No fence/ traffic	Severity	5 (severe/imminent)
Mgmt Recommendations	fence along La Costa Avenue to direct animal movement under road, thin or remove vegetation at each		
Comments:	This is an important pinch point that could use further study		
MHCP Monitoring Priority			

# HMP Wildlife Movement Pinchpoint Description

## LOCATION DESCRIPTION

Corridor	EW3	Point Code:	EW3-8	Assessment Date	8/19/2013	Surveyors:	M. Spiegelberg		
Latitude:	33.07813900000	Longitude:	-117.26645900000	GPS Datum:	WGS 84				
Nearest River:	Encinitas Creek								
Nearest Road	Levante Street		Road Conditions:	2-lane road, Divided roadway with two or mo					
Structure Type:	bridge		Multi Chambers?	no		Structure Material	Concrete		
Bottom Type:	cobbles, rip-rap, water								
Height(m):	5.20	Width (m)	40.00	Length (m):	18.00	Openness Ratio:	11.6	Constraints	No
Description of Constraints	Very open under bridge								
Access Logistics	Not good tracking								
Fencing:	3 foot wall both sides								
Camera Options:	Not priority; easy movement area								
Tracking Potential	No								
Species/Sign Observed:	None								

## DESCRIPTION OF VEGETATION EW3-8

N or E Entrance	Veg. Thickness	blocked	Dominant Vegetation Type	trees				
Cover Classes at 20	Shrubs	2 (6-25%)	Grass/Herbs	1 (1-5%)	Trees:	5 (76-100%)		
	Bare/Rock:	1 (1-5%)	Native Species:	5 (76-100%)	Exotic Species	1 (1-5%)		
S or W Entranc	Veg. Thickness	blocked	Dominant Vegetation Typ	trees				
Cover Classes at 20	Shrubs	2 (6-25%)	Grass/Herb	1 (1-5%)	Trees:	5 (76-100%)		
	Bare/Rock:	1 (1-5%)	Native Species:	5 (76-100%)	Exotic Species	1 (1-5%)		
Veg. Comments:								

## THREATS AND MANAGEMENT RECOMMENDATIONS EW3-8

Primary Threat:	vegetation choking one or both entrances	Severity	4 (high)
Secondary Threat:	People	Severity	2 (low)
Mgmt Recommendations	continue to check vegetation on each side/possible thinning in future		
Comments:			



# HMP Wildlife Movement Pinchpoint Description

## LOCATION DESCRIPTION

Corridor	EW3	Point Code:	EW3-9	Assessment Date	8/19/2013	Surveyors:	M. Spiegelberg		
Latitude:	33.07285700000		Longitude:	-117.26403300000		GPS Datum:	WGS 84		
Nearest River:	Encinitas Creek								
Nearest Road	Calle Barcelona		Road Conditions:	Divided roadway with two or more lanes each					
Structure Type:	bridge		Multi Chambers?	no		Structure Material	Concrete		
Bottom Type:	mud, rip-rap, water, trash								
Height(m):	3.80	Width (m)	30.00	Length (m):	25.00	Openness Ratio:	4.6	Constraints	Yes
Description of Constraints	Rocks and rip rap								
Access Logistics	Low to mod tracking								
Fencing:	3 foot wall each side								
Camera Options:	Not priority; easy movement area								
Tracking Potential	Potential								
Species/Sign Observed:	raccoon								

## DESCRIPTION OF VEGETATION EW3-9

N or E Entrance	Veg. Thickness	blocked	Dominant Vegetation Type	trees		
Cover Classes at 20	Shrubs	2 (6-25%)	Grass/Herbs	1 (1-5%)	Trees:	5 (76-100%)
	Bare/Rock:	1 (1-5%)	Native Species:	5 (76-100%)	Exotic Species	1 (1-5%)
S or W Entranc	Veg. Thickness	blocked	Dominant Vegetation Typ	trees		
Cover Classes at 20	Shrubs	2 (6-25%)	Grass/Herb	1 (1-5%)	Trees:	5 (76-100%)
	Bare/Rock:	1 (1-5%)	Native Species:	5 (76-100%)	Exotic Species	1 (1-5%)
Veg. Comments:	Despite dense vegetation on each end of bridge, movement should be easy as it is mostly trees					

## THREATS AND MANAGEMENT RECOMMENDATIONS EW3-9

Primary Threat:	vegetation choking one or both entrances	Severity	5 (severe/imminent)
Secondary Threat:	People	Severity	2 (low)
Mgmt Recommendations	clear vegetation, remove some of the rocks		
Comments:	Possible vegetation thinning in future		

# HMP Wildlife Movement Pinchpoint Description

## LOCATION DESCRIPTION

Corridor	EW3	Point Code:	EW3-10a	Assessment Date	8/19/2013	Surveyors:	M. Spiegelberg		
Latitude:	33.06785400000		Longitude:	-117.26275300000		GPS Datum:	WGS 84		
Nearest River:	Encinitas Creek								
Nearest Road	Leucadia Blvd, W of El Camino Real		Road Conditions:	Divided roadway with two or more lanes each					
Structure Type:	bridge		Multi Chambers?	no		Structure Material	Concrete		
Bottom Type:	mud, water								
Height(m):	1.50	Width (m)	33.00	Length (m):	44.00	Openness Ratio:	1.1	Constraints	No
Description of Constraints	Mud								
Access Logistics	Good tracking								
Fencing:	4 foot good for animals								
Camera Options:	Yes, good camera location								
Tracking Potential	Yes								
Species/Sign Observed:	coyote, raccoon								

## DESCRIPTION OF VEGETATION EW3-10a

N or E Entrance	Veg. Thickness	moderately blocked	Dominant Vegetation Type	trees		
Cover Classes at 20	Shrubs	2 (6-25%)	Grass/Herbs	1 (1-5%)	Trees:	5 (76-100%)
	Bare/Rock:	1 (1-5%)	Native Species:	5 (76-100%)	Exotic Species	1 (1-5%)
S or W Entranc	Veg. Thickness	moderately blocked	Dominant Vegetation Typ	trees		
Cover Classes at 20	Shrubs	2 (6-25%)	Grass/Herb	1 (1-5%)	Trees:	5 (76-100%)
	Bare/Rock:	1 (1-5%)	Native Species:	5 (76-100%)	Exotic Species	1 (1-5%)
Veg. Comments:						

## THREATS AND MANAGEMENT RECOMMENDATIONS EW3-10a

Primary Threat:	undercrossing very long	Severity	3 (moderate/not imminen
Secondary Threat:	Height	Severity	2 (low)
Mgmt Recommendations	lower mid section		
Comments:			
MHCP Monitoring Priority			



# HMP Wildlife Movement Pinchpoint Description

## LOCATION DESCRIPTION

Corridor	EW3	Point Code:	EW3-10b	Assessment Date	8/19/2013	Surveyors:	M. Spiegelberg		
Latitude:	33.06785200000		Longitude:	-117.26278900000		GPS Datum:	WGS 84		
Nearest River:	Encinitas Creek								
Nearest Road	El Camino Real, S of Leucadia Blvd		Road Conditions:	Divided roadway with two or more lanes each					
Structure Type:	bridge		Multi Chambers?	no		Structure Material	Concrete		
Bottom Type:	mud, water								
Height(m):	1.50	Width (m)	20.00	Length (m):	100.00	Openness Ratio:	0.3	Constraints	Yes
Description of Constraints	Low height mud								
Access Logistics	Good tracking								
Fencing:	Good 4 foot chain link								
Camera Options:	Not priority								
Tracking Potential	Yes								
Species/Sign Observed:	raccoon								
	bats								

## DESCRIPTION OF VEGETATION EW3-10b

N or E Entrance	Veg. Thickness	moderately blocked	Dominant Vegetation Type	trees		
Cover Classes at 20	Shrubs	2 (6-25%)	Grass/Herbs	1 (1-5%)	Trees:	5 (76-100%)
	Bare/Rock:	1 (1-5%)	Native Species:	5 (76-100%)	Exotic Species	1 (1-5%)
S or W Entranc	Veg. Thickness	none	Dominant Vegetation Typ			
Cover Classes at 20	Shrubs	0 (less than 1%)	Grass/Herb	0 (less than 1%)	Trees:	0 (less than 1%)
	Bare/Rock:	5 (76-100%)	Native Species:	0 (less than 1%)	Exotic Species	0 (less than 1%)
Veg. Comments:	Very low and dark underpass; vegetation dense on east side					

## THREATS AND MANAGEMENT RECOMMENDATIONS EW3-10b

Primary Threat:	undercrossing very small	Severity	3 (moderate/not imminen
Secondary Threat:	Water	Severity	2 (low)
Mgmt Recommendations	raise level remove veg		
Comments:	This undercrossing needs more evaluation; very dark; unclear about animal usability		
	MHCP Monitoring Priority		

# HMP Wildlife Movement Pinchpoint Description

## LOCATION DESCRIPTION

Corridor	EW3	Point Code:	EW3-11	Assessment Date	8/19/2013	Surveyors:	M. Spiegelberg		
Latitude:	33.06539402300	Longitude:	-117.25551033200	GPS Datum:	WGS 84				
Nearest River:	unnamed drainage								
Nearest Road	Amargosa Drive		Road Conditions:	Divided roadway with two lanes					
Structure Type:	large pipe under road		Multi Chambers?	no	Structure Material	steel			
Bottom Type:	steel, mud water								
Height(m):	3.30	Width (m)	5.30	Length (m):	25.00	Openness Ratio:	0.7	Constraints	no
Description of Constraints	after rain flooding likely								
Access Logistics	Not good for tracking; water inundated								
Fencing:	fencing good along road								
Camera Options:	Not priority								
Tracking Potential	No								
Species/Sign Observed:									

## DESCRIPTION OF VEGETATION EW3-11

N or E Entrance	Veg. Thickness	moderately open	Dominant Vegetation Type	trees		
Cover Classes at 20	Shrubs	2 (6-25%)	Grass/Herbs	1 (1-5%)	Trees:	5 (76-100%)
	Bare/Rock:	2 (6-25%)	Native Species:	5 (76-100%)	Exotic Species	1 (1-5%)
S or W Entranc	Veg. Thickness	moderately open	Dominant Vegetation Typ	trees		
Cover Classes at 20	Shrubs	2 (6-25%)	Grass/Herb	1 (1-5%)	Trees:	5 (76-100%)
	Bare/Rock:	2 (6-25%)	Native Species:	5 (76-100%)	Exotic Species	1 (1-5%)
Veg. Comments:	Large pipe in urban area; dense veg along creek					

## THREATS AND MANAGEMENT RECOMMENDATIONS EW3-11

Primary Threat:	surrounding area highly disturbed or developed	Severity	5 (severe/imminent)
Secondary Threat:	other human use	Severity	
Mgmt Recommendations			
Comments:	This pipe can allow many species to cross when not inundated; further study recommended		



# HMP Wildlife Movement Pinchpoint Description

## LOCATION DESCRIPTION

Corridor	EW3	Point Code:	EW3-12a	Assessment Date	8/19/2013	Surveyors:	M. Spiegelberg
Latitude:	33.06604735500		Longitude:	-117.25035743500		GPS Datum:	WGS 84
Nearest River:	unnamed drainage						
Nearest Road	S of Olivenhain Road			Road Conditions:			
Structure Type:			Multi Chambers?			Structure Material	
Bottom Type:							
Height(m):		Width (m)		Length (m):		Openness Ratio:	
Description of Constraints							
Access Logistics							
Fencing:							
Camera Options:							
Tracking Potential							
Species/Sign Observed:							

## DESCRIPTION OF VEGETATION EW3-12a

N or E Entrance	Veg. Thickness	moderately blocked	Dominant Vegetation Type	tall grasses/forbs		
Cover Classes at 20	Shrubs		Grass/Herbs		Trees:	
	Bare/Rock:		Native Species:		Exotic Species	
S or W Entranc	Veg. Thickness	moderately open	Dominant Vegetation Typ	shrubs		
Cover Classes at 20	Shrubs		Grass/Herb		Trees:	
	Bare/Rock:		Native Species:		Exotic Species	
Veg. Comments:						

## THREATS AND MANAGEMENT RECOMMENDATIONS EW3-12a

Primary Threat:	surrounding area highly disturbed or developed	Severity	5 (severe/imminent)
Secondary Threat:	other human use	Severity	5 (severe/imminent)
Mgmt Recommendations			
Comments:	existing equestrian center may preclude adequate movement		
Not visited/inaccessible			

# HMP Wildlife Movement Pinchpoint Description

## LOCATION DESCRIPTION

Corridor	EW3	Point Code:	EW3-12b	Assessment Date	8/19/2013	Surveyors:	M. Spiegelberg
Latitude:	33.06607922500		Longitude:	-117.24918805000		GPS Datum:	WGS 84
Nearest River:	unnamed drainage						
Nearest Road	S of Olivenhain Road			Road Conditions:			
Structure Type:			Multi Chambers?			Structure Material	
Bottom Type:							
Height(m):		Width (m)		Length (m):		Openness Ratio:	
Description of Constraints							
Access Logistics							
Fencing:							
Camera Options:							
Tracking Potential							
Species/Sign Observed:							

## DESCRIPTION OF VEGETATION EW3-12b

N or E Entrance	Veg. Thickness	moderately open	Dominant Vegetation Type	shrubs		
Cover Classes at 20	Shrubs		Grass/Herbs		Trees:	
	Bare/Rock:		Native Species:		Exotic Species	
S or W Entranc	Veg. Thickness	moderately open	Dominant Vegetation Typ	shrubs		
Cover Classes at 20	Shrubs		Grass/Herb		Trees:	
	Bare/Rock:		Native Species:		Exotic Species	
Veg. Comments:						

## THREATS AND MANAGEMENT RECOMMENDATIONS EW3-12b

Primary Threat:	surrounding area highly disturbed or developed	Severity	5 (severe/imminent)
Secondary Threat:	other human use	Severity	5 (severe/imminent)
Mgmt Recommendations			
Comments:	existing equestrian center may preclude adequate movement		
	Not visited/inaccessible		



# HMP Wildlife Movement Pinchpoint Description

## LOCATION DESCRIPTION

Corridor	EW3	Point Code:	EW3-13	Assessment Date	8/23/2013	Surveyors:	M. Spiegelberg		
Latitude:	33.06560103600	Longitude:	-117.24471967100	GPS Datum:	WGS 84				
Nearest River:	Unnamed drainage								
Nearest Road	Rancho Santa Fe Road			Road Conditions:					
Structure Type:	box culvert		Multi Chambers?		Structure Material				
Bottom Type:									
Height(m):	1.60	Width (m)	9.20	Length (m):	29.00	Openness Ratio:	0.5	Constraints	
Description of Constraints									
Access Logistics	Not good for tracking (cement)								
Fencing:									
Camera Options:	good for camera								
Tracking Potential	Not good, hard surface								
Species/Sign Observed:	None								

## DESCRIPTION OF VEGETATION EW3-13

N or E Entrance	Veg. Thickness	moderately open	Dominant Vegetation Type	trees		
Cover Classes at 20	Shrubs	2 (6-25%)	Grass/Herbs	1 (1-5%)	Trees:	4 (51-75%)
	Bare/Rock:	2 (6-25%)	Native Species:	4 (51-75%)	Exotic Species	1 (1-5%)
S or W Entranc	Veg. Thickness	moderately open	Dominant Vegetation Typ	trees		
Cover Classes at 20	Shrubs	2 (6-25%)	Grass/Herb	1 (1-5%)	Trees:	4 (51-75%)
	Bare/Rock:	1 (1-5%)	Native Species:	4 (51-75%)	Exotic Species	1 (1-5%)
Veg. Comments:						

## THREATS AND MANAGEMENT RECOMMENDATIONS EW3-13

Primary Threat:	vegetation choking one or both entrances	Severity	2 (low)
Secondary Threat:		Severity	
Mgmt Recommendations	Further study; possible vegetation thinning on east side		
Comments:	undercrossing likely too low for deer; rip rap on east end may make movement difficult		
	MHCP Monitoring Priority;		

# HMP Wildlife Movement Pinchpoint Description

## LOCATION DESCRIPTION

Corridor	CC1b	Point Code:	CC1-1a	Assessment Date	8/21/2013	Surveyors:	J. Henry, D. Pugh, ESA		
Latitude:	33.17445073800	Longitude:	-117.30228322300	GPS Datum:	WGS 84				
Nearest River:	upland								
Nearest Road	Tamarack Avenue			Road Conditions:	2-lane, undivided, low/moderate traffic				
Structure Type:	pipe		Multi Chambers?	no	Structure Material	concrete			
Bottom Type:	hard-armored								
Height(m):	0.95	Width (m)	0.95	Length (m):		Openness Ratio:		Constraints	yes
Description of Constraints	Pipe culvert branches in several directions approximately 10 meters in; standing water observed with								
Access Logistics	Access from residential community								
Fencing:	None								
Camera Options:	Entrance of pipe culvert along concrete wall may be option, by pipe branching make use by wildlife unlikely.								
Tracking Potential	no								
Species/Sign Observed:	none								

## DESCRIPTION OF VEGETATION CC1-1a

N or E Entrance	Veg. Thickness	none	Dominant Vegetation Type			
Cover Classes at 20	Shrubs	4 (51-75%)	Grass/Herbs	1 (1-5%)	Trees:	0 (less than 1%)
	Bare/Rock:	1 (1-5%)	Native Species:	4 (51-75%)	Exotic Species	1 (1-5%)
S or W Entrance	Veg. Thickness	moderately open	Dominant Vegetation Type	shrubs		
Cover Classes at 20	Shrubs	5 (76-100%)	Grass/Herb	1 (1-5%)	Trees:	0 (less than 1%)
	Bare/Rock:	0 (less than 1%)	Native Species:	5 (76-100%)	Exotic Species	2 (6-25%)
Veg. Comments:	No structure outlet observed N of Tamarack Ave, vegetation description classifies general area N of Tamarack Ave.					

## THREATS AND MANAGEMENT RECOMMENDATIONS CC1-1a

Primary Threat:	cannot see to other end of the undercrossing	Severity	5 (severe/imminent)
Secondary Threat:	busy roadway	Severity	3 (moderate)
Mgmt Recommendations	none		
	none		
Comments:	Likely functions as at grade crossing		



# HMP Wildlife Movement Pinchpoint Description

## LOCATION DESCRIPTION

Corridor	CC1b	Point Code:	CC1-1b	Assessment Date	8/21/2013	Surveyors:	J. Henry, D. Pugh, ESA		
Latitude:	33.17445073800		Longitude:	-117.30228322300		GPS Datum:	WGS 84		
Nearest River:	upland								
Nearest Road	Tamarack Avenue		Road Conditions:	2-lane, undivided, low/moderate traffic assoc					
Structure Type:	none		Multi Chambers?			Structure Material			
Bottom Type:									
Height(m):		Width (m)		Length (m):		Openness Ratio:		Constraints	yes
Description of Constraints	Crosses busy roadway								
Access Logistics	Access from residential community								
Fencing:	None								
Camera Options:	Location is not good for cameras; also limited roadkill potential as road is not very busy								
Tracking Potential	no								
Species/Sign Observed:	none								

## DESCRIPTION OF VEGETATION CC1-1b

N or E Entrance	Veg. Thickness	moderately open	Dominant Vegetation Type	short grasses/forbs		
Cover Classes at 20	Shrubs	5 (76-100%)	Grass/Herbs	0 (less than 1%)	Trees:	0 (less than 1%)
	Bare/Rock:	1 (1-5%)	Native Species:	5 (76-100%)	Exotic Species	1 (1-5%)
S or W Entranc	Veg. Thickness	moderately open	Dominant Vegetation Typ	short grasses/forbs		
Cover Classes at 20	Shrubs	5 (76-100%)	Grass/Herb	1 (1-5%)	Trees:	0 (less than 1%)
	Bare/Rock:	1 (1-5%)	Native Species:	5 (76-100%)	Exotic Species	1 (1-5%)
Veg. Comments:	At-grade crossing involves travel through landscaped area and diagonally across roadway.					

## THREATS AND MANAGEMENT RECOMMENDATIONS CC1-1b

Primary Threat:	at-grade crossing	Severity	3 (moderate)
Secondary Threat:	busy roadway	Severity	2 (low)
Mgmt Recommendations	none		
	none		
Comments:	passes thru a sm park between open space (S end for crossing CC1-1a) to E and W. Culvert CC1-1a not found to exit within W side of CC1-1b.		

# HMP Wildlife Movement Pinchpoint Description

## LOCATION DESCRIPTION

Corridor	CC1a	Point Code:	CC1-2	Assessment Date	8/21/2013	Surveyors:	J. Henry, D. Pugh, ESA		
Latitude:	33.16950756100	Longitude:	-117.30292358900	GPS Datum:	WGS 84				
Nearest River:	upland								
Nearest Road	Tamarack Avenue near Chatham Road		Road Conditions:	2-lane, undivided, low/moderate traffic assoc					
Structure Type:	pipe	Multi Chambers?	no	Structure Material	concrete				
Bottom Type:	dirt, debris, trash								
Height(m):	1.00	Width (m)	1.00	Length (m):	70.00	Openness Ratio:	0.0	Constraints	yes
Description of Constraints	Clogged with sediment; large drop structure at west outlet								
Access Logistics	Access from Tamarack Ave.								
Fencing:	Immediate area around west outlet (with the exception of the western side) surrounded by chain link. No fencin								
Camera Options:	Concrete walls offer potential mounting option, but sediment/drop structure make use by wildlife unlikely								
Tracking Potential	no								
Species/Sign Observed:	none								

## DESCRIPTION OF VEGETATION CC1-2

N or E Entrance	Veg. Thickness	moderately blocked	Dominant Vegetation Type	shrubs				
Cover Classes at 20	Shrubs	2 (6-25%)	Grass/Herbs	2 (6-25%)	Trees:	3 (26-50%)		
	Bare/Rock:	0 (less than 1%)	Native Species:	2 (6-25%)	Exotic Species	4 (51-75%)		
S or W Entranc	Veg. Thickness	moderately blocked	Dominant Vegetation Typ	trees				
Cover Classes at 20	Shrubs	3 (26-50%)	Grass/Herb	0 (less than 1%)	Trees:	3 (26-50%)		
	Bare/Rock:	2 (6-25%)	Native Species:	4 (51-75%)	Exotic Species	1 (1-5%)		
Veg. Comments:	W side in decent SWS/CSS habitat, E side in EucWL/Ornamental with dCSS							

## THREATS AND MANAGEMENT RECOMMENDATIONS CC1-2

Primary Threat:	sediment buildup at one or both ends	Severity	4 (high)
Secondary Threat:	hanging culvert at downstream end due to erosion	Severity	5 (severe/imminent)
Mgmt Recommendations	Dredged sediment		
	Removal of drop structure		
Comments:	Drop structure at W end closest to "hanging culvert"; Current condition makes wildlife use unlikely; likely functions as an at-grade crossing		



# HMP Wildlife Movement Pinchpoint Description

## LOCATION DESCRIPTION

Corridor	CC1b	Point Code:	CC1-3	Assessment Date	8/13/2013	Surveyors:	R. Humphrey, J. Henry, ESA		
Latitude:	33.16860823100		Longitude:	-117.29883236000		GPS Datum:	WGS 84		
Nearest River:	unnamed drainage								
Nearest Road	Harwich Drive near Carlsbad Village Drive		Road Conditions:	2 lane, undivided, double yellow line, low traf					
Structure Type:	pipe-at grade crossing		Multi Chambers?	no		Structure Material	metal		
Bottom Type:	hard-armored								
Height(m):	0.40	Width (m)		Length (m):		Openness Ratio:		Constraints	
Description of Constraints									
Access Logistics	Not good for camera monitoring because at-grade crossing; road kill study?								
Fencing:	E and W sides with 3-wire fencing								
Camera Options:									
Tracking Potential	no								
Species/Sign Observed:	none								

## DESCRIPTION OF VEGETATION CC1-3

N or E Entrance	Veg. Thickness	open	Dominant Vegetation Type	shrubs		
Cover Classes at 20	Shrubs	5 (76-100%)	Grass/Herbs	0 (less than 1%)	Trees:	0 (less than 1%)
	Bare/Rock:	1 (1-5%)	Native Species:	5 (76-100%)	Exotic Species	0 (less than 1%)
S or W Entranc	Veg. Thickness		Dominant Vegetation Typ	shrubs		
Cover Classes at 20	Shrubs	5 (76-100%)	Grass/Herb	0 (less than 1%)	Trees:	0 (less than 1%)
	Bare/Rock:	0 (less than 1%)	Native Species:	5 (76-100%)	Exotic Species	1 (1-5%)
Veg. Comments:	Good quality CSS habitat					

## THREATS AND MANAGEMENT RECOMMENDATIONS CC1-3

Primary Threat:	at-grade crossing	Severity	3 (moderate)
Secondary Threat:		Severity	
Mgmt Recommendations	Does not appear to be heavy traffic;		
Comments:			
	considered to be an at-grade crossing due to narrow width of pipe. Camera placed between CC1-3 and CC1-4 near wildlife trail.		

# HMP Wildlife Movement Pinchpoint Description

## LOCATION DESCRIPTION

Corridor	CC1b	Point Code:	CC1-4	Assessment Date	8/13/2013	Surveyors:	R. Humphrey, J. Henry, ESA
Latitude:	33.16896558200		Longitude:	-117.29488343400		GPS Datum:	WGS 84
Nearest River:	Upland crossing west of Lake Calavera						
Nearest Road	College Blvd near Carlsbad Village Drive		Road Conditions:	busy, divided highway			
Structure Type:	none		Multi Chambers?			Structure Material	
Bottom Type:							
Height(m):		Width (m)		Length (m):		Openness Ratio:	
Description of Constraints							
Access Logistics	at-grade crossing so not good for camera; road kill study?						
Fencing:	E side no fencing; blocked by thick shrubs but passable; W side 3-wire fencing						
Camera Options:							
Tracking Potential	low potential						
Species/Sign Observed:	raccoon						

## DESCRIPTION OF VEGETATION CC1-4

N or E Entrance	Veg. Thickness		Dominant Vegetation Type	shrubs			
Cover Classes at 20	Shrubs	5 (76-100%)	Grass/Herbs	0 (less than 1%)	Trees:	0 (less than 1%)	
	Bare/Rock:	0 (less than 1%)	Native Species:	5 (76-100%)	Exotic Species	1 (1-5%)	
S or W Entranc	Veg. Thickness		Dominant Vegetation Typ	shrubs			
Cover Classes at 20	Shrubs	5 (76-100%)	Grass/Herb	1 (1-5%)	Trees:	2 (6-25%)	
	Bare/Rock:	1 (1-5%)	Native Species:	5 (76-100%)	Exotic Species	1 (1-5%)	
Veg. Comments:	Good quality CSS habitat on both sides; W side with small area of freshwater marsh and riparian forest						

## THREATS AND MANAGEMENT RECOMMENDATIONS CC1-4

Primary Threat:	at-grade crossing	Severity	5 (severe/imminent)
Secondary Threat:		Severity	
Mgmt Recommendations	unknown at this time		
Comments:			



# HMP Wildlife Movement Pinchpoint Description

## LOCATION DESCRIPTION

Corridor	CC2	Point Code:	CC2-1	Assessment Date	8/29/2013	Surveyors:	J. Henry, D. Dirks, ESA		
Latitude:	33.13705715100	Longitude:	-117.30981087300	GPS Datum:	WGS 84				
Nearest River:	upland								
Nearest Road	Cannon Road	Road Conditions:	4-lane, divided, heavy traffic (Cannon Road).						
Structure Type:	bridge	Multi Chambers?	no	Structure Material	concrete				
Bottom Type:	dirt, mud, rip-rap, hard-armored, vegetation present, water								
Height(m):	20.00	Width (m)	141.00	Length (m):	28.00	Openness Ratio:	100.7	Constraints	potential
Description of Constraints	Thick vegetation, water present in much of crossing								
Access Logistics	Accessed from Faraday Road. Parking along Cannon Road is not permitted.								
Fencing:	Fencing along S slopes leading to S end of crossing. Fencing does not restrict access to Cannon Road from S side.								
Camera Options:	Infeasible for camera. Vegetation is too dense, crossing is too large, potentially a good location for a roadkill stu								
Tracking Potential	low potential								
Species/Sign Observed:	coyote, raccoon								

## DESCRIPTION OF VEGETATION CC2-1

N or E Entrance	Veg. Thickness	moderately blocked	Dominant Vegetation Type	shrubs		
Cover Classes at 20	Shrubs	3 (26-50%)	Grass/Herbs	3 (26-50%)	Trees:	3 (26-50%)
	Bare/Rock:	0 (less than 1%)	Native Species:	5 (76-100%)	Exotic Species	1 (1-5%)
S or W Entranc	Veg. Thickness	moderately blocked	Dominant Vegetation Typ	shrubs		
Cover Classes at 20	Shrubs	3 (26-50%)	Grass/Herb	3 (26-50%)	Trees:	3 (26-50%)
	Bare/Rock:	0 (less than 1%)	Native Species:	5 (76-100%)	Exotic Species	1 (1-5%)
Veg. Comments:	Site looks to have been previously restored; old irrigation piping was noted in crossing.					

## THREATS AND MANAGEMENT RECOMMENDATIONS CC2-1

Primary Threat:	no fencing to guide wildlife away from road	Severity	3 (moderate)
Secondary Threat:	vegetation choking one or both entrances	Severity	3 (moderate)
Mgmt Recommendations	Complete fencing to restrict access to roadway		
	Potentially thin vegetation to allow for better movement		
Comments:	Although corridor is very wide, density of veg restricts movement at several points. Almost creates a chambered effect within the crossing.		

# HMP Wildlife Movement Pinchpoint Description

## LOCATION DESCRIPTION

Corridor	CC2	Point Code:	CC2-2	Assessment Date	8/29/2013	Surveyors:	J. Henry, D. Dirks, ESA		
Latitude:	33.13136461200	Longitude:	-117.30373080800	GPS Datum:	WGS 84				
Nearest River:	none								
Nearest Road	The Crossings Golf Course			Road Conditions:	Golf cart overpass, not busy, undivided				
Structure Type:	bridge		Multi Chambers?	no	Structure Material	metal			
Bottom Type:	mud, gravel, vegetation present, water								
Height(m):	3.80	Width (m)	102.00	Length (m):	7.70	Openness Ratio:	50.3	Constraints	potential
Description of Constraints	Thick vegetation present at entrances								
Access Logistics	Access from golf course or SDGE access road.								
Fencing:	None in immediate vicinity of bridge. Fencing exists between the SDGE road and open space to the N, as well as								
Camera Options:	Corridor too wide and vegetation too dense for camera mounting.								
Tracking Potential	low potential								
Species/Sign Observed:	coyote, raccoon								

## DESCRIPTION OF VEGETATION CC2-2

N or E Entrance	Veg. Thickness	moderately blocked	Dominant Vegetation Type	shrubs/trees				
Cover Classes at 20	Shrubs	3 (26-50%)	Grass/Herbs	2 (6-25%)	Trees:	3 (26-50%)		
	Bare/Rock:	0 (less than 1%)	Native Species:	5 (76-100%)	Exotic Species	2 (6-25%)		
S or W Entranc	Veg. Thickness	moderately blocked	Dominant Vegetation Typ	shrubs/trees				
Cover Classes at 20	Shrubs	4 (51-75%)	Grass/Herb	2 (6-25%)	Trees:	3 (26-50%)		
	Bare/Rock:	0 (less than 1%)	Native Species:	5 (76-100%)	Exotic Species	2 (6-25%)		
Veg. Comments:								

## THREATS AND MANAGEMENT RECOMMENDATIONS CC2-2

Primary Threat:	vegetation choking one or both entrances	Severity	3 (moderate)
Secondary Threat:	Fencing may block movement through corridor	Severity	2 (low)
Mgmt Recommendations	Potentially thin vegetation.		
	ensure wildlife is not restricted by existing fencing to the N and E.		
Comments:			



# HMP Wildlife Movement Pinchpoint Description

## LOCATION DESCRIPTION

Corridor	CC2	Point Code:	CC2-3a	Assessment Date	8/29/2013	Surveyors:	J. Henry, D. Dirks, ESA		
Latitude:	33.12777336000		Longitude:	-117.29948575900		GPS Datum:	WGS 84		
Nearest River:	upland crossing								
Nearest Road	College Blvd, E of Palomar Airport Road		Road Conditions:	4-lane, divided, moderately/very busy, high s					
Structure Type:	at-grade crossing		Multi Chambers?			Structure Material			
Bottom Type:									
Height(m):		Width (m)		Length (m):		Openness Ratio:		Constraints	yes
Description of Constraints	busy roadway								
Access Logistics	Access from golf course or maintenance pull-out.								
Fencing:	Split rail fencing present along N end; no fencing along S end.								
Camera Options:	Infeasible for camera. Potentially a good location for a roadkill study.								
Tracking Potential	low potential								
Species/Sign Observed:	none								

## DESCRIPTION OF VEGETATION CC2-3a

N or E Entrance	Veg. Thickness	moderately open	Dominant Vegetation Type	shrubs		
Cover Classes at 20	Shrubs	5 (76-100%)	Grass/Herbs	1 (1-5%)	Trees:	0 (less than 1%)
	Bare/Rock:	2 (6-25%)	Native Species:	5 (76-100%)	Exotic Species	2 (6-25%)
S or W Entranc	Veg. Thickness	moderately open	Dominant Vegetation Typ	shrubs		
Cover Classes at 20	Shrubs	4 (51-75%)	Grass/Herb	2 (6-25%)	Trees:	0 (less than 1%)
	Bare/Rock:	2 (6-25%)	Native Species:	4 (51-75%)	Exotic Species	3 (26-50%)
Veg. Comments:						

## THREATS AND MANAGEMENT RECOMMENDATIONS CC2-3a

Primary Threat:	busy roadway	Severity	5 (severe/imminent)
Secondary Threat:	no fencing to guide wildlife away from road	Severity	3 (moderate)
Mgmt Recommendations	Install undercrossing to avoid at-grade crossing of busy roadway		
	Install fencing to avoid roadkill		
Comments:	CSS at 20 meters from S end appears to be restored/disturbed from road cut.		
Other priority-roadkill			

# HMP Wildlife Movement Pinchpoint Description

## LOCATION DESCRIPTION

Corridor	CC2	Point Code:	CC2-3b	Assessment Date	8/29/2013	Surveyors:	J. Henry, D. Dirks, ESA		
Latitude:	33.12870942500		Longitude:	-117.29706629100		GPS Datum:	WGS 84		
Nearest River:	upland crossing								
Nearest Road	College Blvd, E of Palomar Airport Road		Road Conditions:	4-lane, divided, moderately/very busy, high s					
Structure Type:	at-grade crossing		Multi Chambers?			Structure Material			
Bottom Type:									
Height(m):		Width (m)		Length (m):		Openness Ratio:		Constraints	yes
Description of Constraints	busy roadway								
Access Logistics	Access from golf course								
Fencing:	Split rail fencing present along N end; no fencing along S end.								
Camera Options:	Infeasible for camera. Potentially a good location for a roadkill study.								
Tracking Potential	no								
Species/Sign Observed:	none								

## DESCRIPTION OF VEGETATION CC2-3b

N or E Entrance	Veg. Thickness	open	Dominant Vegetation Type	shrubs		
Cover Classes at 20	Shrubs	5 (76-100%)	Grass/Herbs	2 (6-25%)	Trees:	0 (less than 1%)
	Bare/Rock:	0 (less than 1%)	Native Species:	5 (76-100%)	Exotic Species	2 (6-25%)
S or W Entranc	Veg. Thickness	moderately open	Dominant Vegetation Typ	shrubs		
Cover Classes at 20	Shrubs	5 (76-100%)	Grass/Herb	2 (6-25%)	Trees:	0 (less than 1%)
	Bare/Rock:	0 (less than 1%)	Native Species:	5 (76-100%)	Exotic Species	2 (6-25%)
Veg. Comments:						

## THREATS AND MANAGEMENT RECOMMENDATIONS CC2-3b

Primary Threat:	busy roadway	Severity	5 (severe/imminent)
Secondary Threat:	no fencing to guide wildlife away from road	Severity	3 (moderate)
Mgmt Recommendations	Install undercrossing to avoid at-grade crossing of busy roadway		
	Install fencing to avoid roadkill		
Comments:	Any number of potential crossing location exist between the N and S side of College in between CC2-3a and CC2-3b		
	Other priority-roadkill		



# HMP Wildlife Movement Pinchpoint Description

## LOCATION DESCRIPTION

Corridor	CC2	Point Code:	CC2-3c	Assessment Date	8/29/2013	Surveyors:	J. Henry, D. Dirks, ESA		
Latitude:	33.13036888000		Longitude:	-117.29144267600		GPS Datum:	WGS 84		
Nearest River:	upland crossing								
Nearest Road	College Blvd, E of Palomar Airport Road		Road Conditions:	4-lane, divided, moderately/very busy, high s					
Structure Type:	at-grade crossing		Multi Chambers?			Structure Material			
Bottom Type:									
Height(m):		Width (m)		Length (m):		Openness Ratio:		Constraints	yes
Description of Constraints	busy roadway								
Access Logistics	Access from Palomar Point Way								
Fencing:	Chain link is present along N side of College, extends W of the crossing for approximately 100 meters. No fencin								
Camera Options:	Infeasible for camera. Potentially a good location for a roadkill study.								
Tracking Potential	no								
Species/Sign Observed:	coyote, rabbit								

## DESCRIPTION OF VEGETATION CC2-3c

N or E Entrance	Veg. Thickness	moderately blocked	Dominant Vegetation Type	shrubs		
Cover Classes at 20	Shrubs	3 (26-50%)	Grass/Herbs	3 (26-50%)	Trees:	1 (1-5%)
	Bare/Rock:	0 (less than 1%)	Native Species:	3 (26-50%)	Exotic Species	3 (26-50%)
S or W Entranc	Veg. Thickness	open	Dominant Vegetation Typ	short grasses/forbs		
Cover Classes at 20	Shrubs	0 (less than 1%)	Grass/Herb	5 (76-100%)	Trees:	0 (less than 1%)
	Bare/Rock:	1 (1-5%)	Native Species:	1 (1-5%)	Exotic Species	5 (76-100%)
Veg. Comments:						

## THREATS AND MANAGEMENT RECOMMENDATIONS CC2-3c

Primary Threat:	busy roadway	Severity	5 (severe/imminent)
Secondary Threat:	no fencing to guide wildlife away from road	Severity	3 (moderate)
Mgmt Recommendations	Install undercrossing to avoid at-grade crossing of busy roadway		
	Install fencing to avoid roadkill		
Comments:	Any wildlife using the crossing must skirt around to the E to avoid the existing fence line on the N side.		

# HMP Wildlife Movement Pinchpoint Description

## LOCATION DESCRIPTION

Corridor	CC2	Point Code:	CC2-4	Assessment Date	8/29/2013	Surveyors:	J. Henry, D. Dirks, ESA		
Latitude:	33.12302006900	Longitude:	-117.29534893500	GPS Datum:	WGS 84				
Nearest River:	upland crossing								
Nearest Road	Palomar Airport Road, E of Aviara Parkway		Road Conditions:	6-lane, divided, extremely high volume/speed					
Structure Type:	box culvert with apron		Multi Chambers?	no	Structure Material	concrete			
Bottom Type:	dirt								
Height(m):	0.87	Width (m)	1.95	Length (m):	40.70	Openness Ratio:	0.0	Constraints	yes
Description of Constraints	culvert is clogged with sediment; thin vegetation at both ends.								
Access Logistics	Access from golf course to the N or business park to the W								
Fencing:	No fencing along S side; Property N of N end is fenced with chain link.								
Camera Options:	Potential mountings options on aprons; but length and presence of sediment/veg make use of the culvert by wil								
Tracking Potential	low potential								
Species/Sign Observed:	none								

## DESCRIPTION OF VEGETATION CC2-4

N or E Entrance	Veg. Thickness	moderately blocked	Dominant Vegetation Type	tall grasses/forbs				
Cover Classes at 20	Shrubs	4 (51-75%)	Grass/Herbs	2 (6-25%)	Trees:	0 (less than 1%)		
	Bare/Rock:	0 (less than 1%)	Native Species:	4 (51-75%)	Exotic Species	2 (6-25%)		
S or W Entranc	Veg. Thickness	moderately blocked	Dominant Vegetation Typ	shrubs/trees				
Cover Classes at 20	Shrubs	3 (26-50%)	Grass/Herb	2 (6-25%)	Trees:	3 (26-50%)		
	Bare/Rock:	0 (less than 1%)	Native Species:	5 (76-100%)	Exotic Species	2 (6-25%)		
Veg. Comments:								

## THREATS AND MANAGEMENT RECOMMENDATIONS CC2-4

Primary Threat:	busy roadway	Severity	5 (severe/imminent)
Secondary Threat:	obstructions (debris) within undercrossing	Severity	3 (moderate)
Mgmt Recommendations	Install fencing to restrict access to roadway		
	Remove sediment clogging culvert		
Comments:	A homeless encampment (unknown if occupied) noted approximately 100 meters W of the S end.		
	Other priority-roadkill		



# HMP Wildlife Movement Pinchpoint Description

## LOCATION DESCRIPTION

Corridor	CC2	Point Code:	CC2-5a	Assessment Date	8/29/2013	Surveyors:	J. Henry, D. Dirks, ESA		
Latitude:	33.11971303100		Longitude:	-117.29813218300		GPS Datum:	WGS 84		
Nearest River:	Upland								
Nearest Road	Cobblestone Drive		Road Conditions:	4-lane, undivided, low traffic, moderate speed					
Structure Type:	at-grade crossing		Multi Chambers?			Structure Material			
Bottom Type:									
Height(m):		Width (m)		Length (m):		Openness Ratio:		Constraints	potential
Description of Constraints	roadway								
Access Logistics	Access from Goldenbush Drive.								
Fencing:	Fencing around community located W of the N end								
Camera Options:	Infeasible for camera. Possible roadkill study site, but traffic volume/speed may be too low.								
Tracking Potential	yes (along dirt road S of crossing).								
Species/Sign Observed:	coyote, raccoon, rabbit								
	domestic dogs								

## DESCRIPTION OF VEGETATION CC2-5a

N or E Entrance	Veg. Thickness	moderately blocked	Dominant Vegetation Type	shrubs			
Cover Classes at 20	Shrubs	4 (51-75%)	Grass/Herbs	2 (6-25%)	Trees:	1 (1-5%)	
	Bare/Rock:	0 (less than 1%)	Native Species:	4 (51-75%)	Exotic Species	2 (6-25%)	
S or W Entrance	Veg. Thickness	moderately open	Dominant Vegetation Type	shrubs			
Cover Classes at 20	Shrubs	3 (26-50%)	Grass/Herb	2 (6-25%)	Trees:	1 (1-5%)	
	Bare/Rock:	2 (6-25%)	Native Species:	3 (26-50%)	Exotic Species	3 (26-50%)	
Veg. Comments:							

## THREATS AND MANAGEMENT RECOMMENDATIONS CC2-5a

Primary Threat:	busy roadway	Severity	2 (low)
Secondary Threat:	no fencing to guide wildlife away from road	Severity	2 (low)
Mgmt Recommendations	Lower speed limit?		
Comments:	2 culverts S of the S end of the crossing; one to the W (near Goldenbush Drive) and one directly S. Both w/ locked gates preventing movement		

# HMP Wildlife Movement Pinchpoint Description

## LOCATION DESCRIPTION

Corridor	CC2	Point Code:	CC2-5b	Assessment Date	8/29/2013	Surveyors:	J. Henry, D. Dirks, ESA		
Latitude:	33.11943023500		Longitude:	-117.29674805900		GPS Datum:	WGS 84		
Nearest River:	Upland								
Nearest Road	Cobblestone Drive		Road Conditions:	4-lane, undivided, low to moderate traffic vol					
Structure Type:	at-grade crossing		Multi Chambers?			Structure Material			
Bottom Type:									
Height(m):		Width (m)		Length (m):		Openness Ratio:		Constraints	potential
Description of Constraints	roadway								
Access Logistics	Access from Willow Place.								
Fencing:	Chain link fencing is present along W end around development to the N. A second chain link fence runs N toward								
Camera Options:	Infeasible for camera. Possible roadkill study site, but traffic volume/speed may be too low.								
Tracking Potential	low potential								
Species/Sign Observed:	other								
	Frog sp.								

## DESCRIPTION OF VEGETATION CC2-5b

N or E Entrance	Veg. Thickness	moderately open	Dominant Vegetation Type	shrubs		
Cover Classes at 20	Shrubs	3 (26-50%)	Grass/Herbs	2 (6-25%)	Trees:	1 (1-5%)
	Bare/Rock:	0 (less than 1%)	Native Species:	3 (26-50%)	Exotic Species	3 (26-50%)
S or W Entrance	Veg. Thickness	moderately open	Dominant Vegetation Type	shrubs		
Cover Classes at 20	Shrubs	3 (26-50%)	Grass/Herb	2 (6-25%)	Trees:	2 (6-25%)
	Bare/Rock:	0 (less than 1%)	Native Species:	3 (26-50%)	Exotic Species	3 (26-50%)
Veg. Comments:	Linkage likely intergrades within corridor associated with CC2-5a					

## THREATS AND MANAGEMENT RECOMMENDATIONS CC2-5b

Primary Threat:	busy roadway	Severity	2 (low)
Secondary Threat:	no fencing to guide wildlife away from road	Severity	2 (low)
Mgmt Recommendations	none		
Comments:	Crossing threats are minimal; wildlife traffic is likely low.		



# HMP Wildlife Movement Pinchpoint Description

## LOCATION DESCRIPTION

Corridor	CC2	Point Code:	CC2-6a	Assessment Date	8/29/2013	Surveyors:	J. Henry, D. Dirks, ESA		
Latitude:	33.11019796600		Longitude:	-117.29600208800		GPS Datum:	WGS 84		
Nearest River:	upland								
Nearest Road	Aviara Parkway and Poinsettia Lane		Road Conditions:	4-5 lane, divided, high traffic, near intersectio					
Structure Type:	at-grade crossing		Multi Chambers?			Structure Material			
Bottom Type:									
Height(m):		Width (m)		Length (m):		Openness Ratio:		Constraints	yes
Description of Constraints	busy roadway								
Access Logistics	Accessed from church parking at NE corner of intersection								
Fencing:	Small polygon of chain link fencing is present around small drainage and manhole cover on N side of road. Back								
Camera Options:	Infeasible for camera. Potentially a good location for a roadkill study.								
Tracking Potential	low potential								
Species/Sign Observed:	none								

## DESCRIPTION OF VEGETATION CC2-6a

N or E Entrance	Veg. Thickness	moderately blocked	Dominant Vegetation Type	shrubs		
Cover Classes at 20	Shrubs	2 (6-25%)	Grass/Herbs	3 (26-50%)	Trees:	3 (26-50%)
	Bare/Rock:	1 (1-5%)	Native Species:	0 (less than 1%)	Exotic Species	5 (76-100%)
S or W Entranc	Veg. Thickness	moderately open	Dominant Vegetation Typ	shrubs		
Cover Classes at 20	Shrubs	4 (51-75%)	Grass/Herb	2 (6-25%)	Trees:	1 (1-5%)
	Bare/Rock:	0 (less than 1%)	Native Species:	3 (26-50%)	Exotic Species	4 (51-75%)
Veg. Comments:	Habitat opens up tremendously to the S of CC2-6b.					

## THREATS AND MANAGEMENT RECOMMENDATIONS CC2-6a

Primary Threat:	busy roadway	Severity	5 (severe/imminent)
Secondary Threat:	no fencing to guide wildlife away from road	Severity	3 (moderate)
Mgmt Recommendations	Install undercrossing to avoid at-grade crossing of busy roadway		
	Install fencing to avoid roadkill		
Comments:	Corridor may not function due to length or corridor and width restriction near houses along Poinsettia		

# HMP Wildlife Movement Pinchpoint Description

## LOCATION DESCRIPTION

Corridor	CC2	Point Code:	CC2-6b	Assessment Date	8/29/2013	Surveyors:	J. Henry, D. Dirks, ESA		
Latitude:	33.11192469600		Longitude:	-117.29231733600		GPS Datum:	WGS 84		
Nearest River:	upland								
Nearest Road	Poinsettia Lane, E of Aviara Parkway		Road Conditions:	4-lane, divided, high traffic speed and volume					
Structure Type:	at-grade crossing		Multi Chambers?			Structure Material			
Bottom Type:									
Height(m):		Width (m)		Length (m):		Openness Ratio:		Constraints	yes
Description of Constraints	busy roadway								
Access Logistics	Access from church property on N side or road parking on N side								
Fencing:	Chain link fencing along N end near church property W of the crossing; fencing also along roadway E of crossing								
Camera Options:	Infeasible for camera. Potentially a good location for a roadkill study.								
Tracking Potential	low potential								
Species/Sign Observed:	rabbit								

## DESCRIPTION OF VEGETATION CC2-6b

N or E Entrance	Veg. Thickness	open	Dominant Vegetation Type	short grasses/forbs		
Cover Classes at 20	Shrubs	4 (51-75%)	Grass/Herbs	2 (6-25%)	Trees:	0 (less than 1%)
	Bare/Rock:	1 (1-5%)	Native Species:	4 (51-75%)	Exotic Species	2 (6-25%)
S or W Entranc	Veg. Thickness	moderately blocked	Dominant Vegetation Typ	shrubs		
Cover Classes at 20	Shrubs	5 (76-100%)	Grass/Herb	0 (less than 1%)	Trees:	2 (6-25%)
	Bare/Rock:	0 (less than 1%)	Native Species:	4 (51-75%)	Exotic Species	2 (6-25%)
Veg. Comments:						

## THREATS AND MANAGEMENT RECOMMENDATIONS CC2-6b

Primary Threat:	busy roadway	Severity	5 (severe/imminent)
Secondary Threat:	no fencing to guide wildlife away from road	Severity	3 (moderate)
Mgmt Recommendations	Install undercrossing to avoid at-grade crossing of busy roadway		
	Install fencing to avoid roadkill		
Comments:	Small drainage noted running parallel to Poinsettia along S end.		



# HMP Wildlife Movement Pinchpoint Description

## LOCATION DESCRIPTION

Corridor	CC2	Point Code:	CC2-7a	Assessment Date	9/12/2013	Surveyors:	J. Henry, D. Dirks, ESA		
Latitude:	33.10889664300		Longitude:	-117.29255161200		GPS Datum:	WGS 84		
Nearest River:	upland								
Nearest Road	Nightshade Road, W of Towhee Lane		Road Conditions:	2-lane, undivided, not busy					
Structure Type:	at-grade crossing		Multi Chambers?			Structure Material			
Bottom Type:									
Height(m):		Width (m)		Length (m):		Openness Ratio:		Constraints	no
Description of Constraints									
Access Logistics	Park on Nightshade								
Fencing:	linkage is somewhat constrained by wrought iron fencing around residential home N and S of crossing								
Camera Options:	None								
Tracking Potential	no								
Species/Sign Observed:	None								

## DESCRIPTION OF VEGETATION CC2-7a

N or E Entrance	Veg. Thickness	moderately open		Dominant Vegetation Type	short grasses/forbs				
Cover Classes at 20	Shrubs	4 (51-75%)		Grass/Herbs	2 (6-25%)		Trees:	1 (1-5%)	
	Bare/Rock:	2 (6-25%)		Native Species:	4 (51-75%)		Exotic Species	2 (6-25%)	
S or W Entranc	Veg. Thickness	moderately open		Dominant Vegetation Typ	short grasses/forbs				
Cover Classes at 20	Shrubs	3 (26-50%)		Grass/Herb	3 (26-50%)		Trees:	2 (6-25%)	
	Bare/Rock:	2 (6-25%)		Native Species:	3 (26-50%)		Exotic Species	3 (26-50%)	
Veg. Comments:									

## THREATS AND MANAGEMENT RECOMMENDATIONS CC2-7a

Primary Threat:	no fencing to guide wildlife away from road		Severity	3 (moderate)	
Secondary Threat:	busy roadway		Severity	2 (low)	
Mgmt Recommendations	None; road doesn't have sufficient traffic volume/speed to pose a considerable threat to movement				
Comments:					

# HMP Wildlife Movement Pinchpoint Description

## LOCATION DESCRIPTION

Corridor	CC2	Point Code:	CC2-7b	Assessment Date	9/12/2013	Surveyors:	J. Henry, D. Dirks, ESA		
Latitude:	33.10938004700		Longitude:	-117.29008460100		GPS Datum:	WGS 84		
Nearest River:	upland								
Nearest Road	Nightshade Road, E of Towhee Lane		Road Conditions:	2-lane, divided, not busy					
Structure Type:	at-grade crossing		Multi Chambers?			Structure Material			
Bottom Type:									
Height(m):		Width (m)		Length (m):		Openness Ratio:		Constraints	potential
Description of Constraints	fencing to the south								
Access Logistics	Park on Nightshade								
Fencing:	Wrought iron fencing along residential houses to north; wrought iron and chain link to south along houses/utilit								
Camera Options:	not good for camera								
Tracking Potential	low potential along dirt rd. south								
Species/Sign Observed:									

## DESCRIPTION OF VEGETATION CC2-7b

N or E Entrance	Veg. Thickness	moderately open	Dominant Vegetation Type	shrubs		
Cover Classes at 20	Shrubs	4 (51-75%)	Grass/Herbs	2 (6-25%)	Trees:	2 (6-25%)
	Bare/Rock:	2 (6-25%)	Native Species:	4 (51-75%)	Exotic Species	2 (6-25%)
S or W Entranc	Veg. Thickness	open	Dominant Vegetation Typ	tall grasses/forbs		
Cover Classes at 20	Shrubs	3 (26-50%)	Grass/Herb	0 (less than 1%)	Trees:	0 (less than 1%)
	Bare/Rock:	3 (26-50%)	Native Species:	3 (26-50%)	Exotic Species	0 (less than 1%)
Veg. Comments:						

## THREATS AND MANAGEMENT RECOMMENDATIONS CC2-7b

Primary Threat:	fencing south of crossing	Severity	3 (moderate)
Secondary Threat:	busy roadway	Severity	2 (low)
Mgmt Recommendations	Removing/altering fencing to the south to allow movement would eliminate constraints		
Comments:	Gate to south was open at time of survey, allowing movement		



# HMP Wildlife Movement Pinchpoint Description

## LOCATION DESCRIPTION

Corridor	CC2	Point Code:	CC2-8a	Assessment Date	9/12/2013	Surveyors:	J. Henry, D. Dirks, ESA
Latitude:	33.10607627500		Longitude:	-117.29193704800		GPS Datum:	WGS 84
Nearest River:	upland						
Nearest Road	Aviara Parkway, W of Towhee Lane		Road Conditions:	4-lane, divided, busy, high volume/speed			
Structure Type:	at-grade crossing		Multi Chambers?			Structure Material	
Bottom Type:							
Height(m):		Width (m)		Length (m):		Openness Ratio:	
Description of Constraints							
Access Logistics	Park on Towhee Lane						
Fencing:	tall (6 ft.) wrought iron fence runs most of length of the south side; Wrought iron also along houses on N side.						
Camera Options:	none						
Tracking Potential	No						
Species/Sign Observed:	None						

## DESCRIPTION OF VEGETATION CC2-8a

N or E Entrance	Veg. Thickness	moderately open		Dominant Vegetation Type	short grasses/forbs		
Cover Classes at 20	Shrubs	2 (6-25%)		Grass/Herbs	4 (51-75%)		
	Bare/Rock:	2 (6-25%)		Native Species:	2 (6-25%)		
				Exotic Species	5 (76-100%)		
S or W Entranc	Veg. Thickness	moderately open		Dominant Vegetation Typ	shrubs		
Cover Classes at 20	Shrubs	3 (26-50%)		Grass/Herb	2 (6-25%)		
	Bare/Rock:	2 (6-25%)		Native Species:	3 (26-50%)		
				Exotic Species	3 (26-50%)		
Veg. Comments:							

## THREATS AND MANAGEMENT RECOMMENDATIONS CC2-8a

Primary Threat:	busy roadway	Severity	5 (severe/imminent)
Secondary Threat:	fencing blocks movement, S side	Severity	5 (severe/imminent)
Mgmt Recommendations	roadway likely too busy to facilitate movement, even with fencing modifications		
Comments:			

# HMP Wildlife Movement Pinchpoint Description

## LOCATION DESCRIPTION

Corridor	CC2	Point Code:	CC2-8b	Assessment Date	9/12/2013	Surveyors:	J. Henry, D. Dirks, ESA		
Latitude:	33.10553473500		Longitude:	-117.28944616400		GPS Datum:	WGS 84		
Nearest River:	upland								
Nearest Road	Aviara Parkway, E of Towhee Lane		Road Conditions:	4-lane, divided, busy, high volume/speed					
Structure Type:	at-grade crossing		Multi Chambers?			Structure Material			
Bottom Type:									
Height(m):		Width (m)		Length (m):		Openness Ratio:		Constraints	yes
Description of Constraints	busy roadway								
Access Logistics	Park on Towhee Lane								
Fencing:	wrought iron fence runs length of south side; similar fencing on north except open along utility road (concrete								
Camera Options:	Possibly along concrete wall on north utility rd.								
Tracking Potential	no								
Species/Sign Observed:	None								

## DESCRIPTION OF VEGETATION CC2-8b

N or E Entrance	Veg. Thickness	moderately open	Dominant Vegetation Type	shrubs		
Cover Classes at 20	Shrubs	4 (51-75%)	Grass/Herbs	0 (less than 1%)	Trees:	2 (6-25%)
	Bare/Rock:	2 (6-25%)	Native Species:	2 (6-25%)	Exotic Species	4 (51-75%)
S or W Entranc	Veg. Thickness	moderately blocked	Dominant Vegetation Typ	shrubs		
Cover Classes at 20	Shrubs	3 (26-50%)	Grass/Herb	0 (less than 1%)	Trees:	3 (26-50%)
	Bare/Rock:	2 (6-25%)	Native Species:	0 (less than 1%)	Exotic Species	5 (76-100%)
Veg. Comments:	golf course on south side					

## THREATS AND MANAGEMENT RECOMMENDATIONS CC2-8b

Primary Threat:	busy roadway	Severity	5 (severe/imminent)
Secondary Threat:	fencing blocks movement	Severity	5 (severe/imminent)
Mgmt Recommendations	roadway likely too busy to allow movement even with fencing modifications		
Comments:			



# HMP Wildlife Movement Pinchpoint Description

## LOCATION DESCRIPTION

Corridor	CC2	Point Code:	CC2-9	Assessment Date	9/12/2013	Surveyors:	J. Henry, D. Dirks, ESA		
Latitude:	33.10405344700	Longitude:	-117.28879967500	GPS Datum:	WGS 84				
Nearest River:	upland								
Nearest Road	Black Rail Road			Road Conditions:	2-lane, undivided, not busy				
Structure Type:	golf cart under-crossing		Multi Chambers?	no	Structure Material	concrete			
Bottom Type:	hard-armored								
Height(m):	8.30	Width (m)	9.30	Length (m):	102.40	Openness Ratio:	0.8	Constraints	yes
Description of Constraints	human use; lighting, fencing								
Access Logistics	park on Black Rail Ct.								
Fencing:	fencing along houses on S side and along Black Rail Ct.								
Camera Options:	Not good for cameras due to human use (golf carts; could have night-only operation)								
Tracking Potential	No								
Species/Sign Observed:	None								

## DESCRIPTION OF VEGETATION CC2-9

N or E Entrance	Veg. Thickness	moderately open	Dominant Vegetation Type	shrubs		
Cover Classes at 20	Shrubs	2 (6-25%)	Grass/Herbs	1 (1-5%)	Trees:	3 (26-50%)
	Bare/Rock:	2 (6-25%)	Native Species:	2 (6-25%)	Exotic Species	4 (51-75%)
S or W Entranc	Veg. Thickness	moderately open	Dominant Vegetation Typ	shrubs		
Cover Classes at 20	Shrubs	3 (26-50%)	Grass/Herb	0 (less than 1%)	Trees:	2 (6-25%)
	Bare/Rock:	2 (6-25%)	Native Species:	0 (less than 1%)	Exotic Species	4 (51-75%)
Veg. Comments:						

## THREATS AND MANAGEMENT RECOMMENDATIONS CC2-9

Primary Threat:	human use	Severity	3 (moderate)
Secondary Threat:	fencing blocks movement	Severity	5 (severe/imminent)
Mgmt Recommendations	modify fence to allow movement if animals won't move through undercrossing?		
Comments:			

# HMP Wildlife Movement Pinchpoint Description

## LOCATION DESCRIPTION

Corridor	CC2	Point Code:	CC2-10a	Assessment Date	9/12/2013	Surveyors:	J. Henry, D. Dirks, ESA		
Latitude:	33.09272793100	Longitude:	-117.28975039300	GPS Datum:	WGS 84				
Nearest River:	North of Batiquitos Lagoon								
Nearest Road	Batiquitos Drive		Road Conditions:	2-lane, undivided, moderately busy					
Structure Type:	golf cart under-crossing		Multi Chambers?	no	Structure Material	concrete			
Bottom Type:	hard-armored								
Height(m):	8.30	Width (m)	9.30	Length (m):	90.00	Openness Ratio:	0.9	Constraints	yes
Description of Constraints	human use; lighting, fencing								
Access Logistics	Park at Black Swan Place								
Fencing:	fencing along N and S								
Camera Options:	Not good for cameras due to human use (golf carts; could have night-only operation)								
Tracking Potential	no								
Species/Sign Observed:	None								

## DESCRIPTION OF VEGETATION CC2-10a

N or E Entrance	Veg. Thickness	moderately open	Dominant Vegetation Type	shrubs		
Cover Classes at 20	Shrubs	4 (51-75%)	Grass/Herbs	0 (less than 1%)	Trees:	3 (26-50%)
	Bare/Rock:	1 (1-5%)	Native Species:	0 (less than 1%)	Exotic Species	5 (76-100%)
S or W Entranc	Veg. Thickness	moderately open	Dominant Vegetation Typ	shrubs		
Cover Classes at 20	Shrubs	2 (6-25%)	Grass/Herb	3 (26-50%)	Trees:	2 (6-25%)
	Bare/Rock:	2 (6-25%)	Native Species:	0 (less than 1%)	Exotic Species	5 (76-100%)
Veg. Comments:						

## THREATS AND MANAGEMENT RECOMMENDATIONS CC2-10a

Primary Threat:	human use	Severity	3 (moderate)
Secondary Threat:	fencing blocks movement	Severity	5 (severe/imminent)
Mgmt Recommendations	modify fence to allow movement if animals won't move through undercrossing?		
Comments:			



# HMP Wildlife Movement Pinchpoint Description

## LOCATION DESCRIPTION

Corridor	CC2	Point Code:	CC2-10b	Assessment Date	9/12/2013	Surveyors:	J. Henry, D. Dirks, ESA		
Latitude:		Longitude:		GPS Datum:	WGS 84				
Nearest River:	North of Batiquitos Lagoon								
Nearest Road	Batiquitos Drive		Road Conditions:	2-lane, undivided, moderately busy					
Structure Type:	golf cart under-crossing		Multi Chambers?	no	Structure Material	concrete			
Bottom Type:	hard-armored								
Height(m):	8.60	Width (m)	10.90	Length (m):	124.80	Openness Ratio:	0.8	Constraints	yes
Description of Constraints	human use; lighting, fencing								
Access Logistics	Park on Aviara Dr.								
Fencing:	wrought iron fencing along Batiquitos Dr.								
Camera Options:	Not good for cameras due to human use (golf carts; could have night-only operation)								
Tracking Potential	no								
Species/Sign Observed:	None								

## DESCRIPTION OF VEGETATION CC2-10b

N or E Entrance	Veg. Thickness	moderately open	Dominant Vegetation Type	shrubs		
Cover Classes at 20	Shrubs	3 (26-50%)	Grass/Herbs	0 (less than 1%)	Trees:	3 (26-50%)
	Bare/Rock:	3 (26-50%)	Native Species:	0 (less than 1%)	Exotic Species	4 (51-75%)
S or W Entranc	Veg. Thickness	moderately open	Dominant Vegetation Typ	shrubs		
Cover Classes at 20	Shrubs	3 (26-50%)	Grass/Herb	0 (less than 1%)	Trees:	3 (26-50%)
	Bare/Rock:	2 (6-25%)	Native Species:	0 (less than 1%)	Exotic Species	5 (76-100%)
Veg. Comments:						

## THREATS AND MANAGEMENT RECOMMENDATIONS CC2-10b

Primary Threat:	human use	Severity	3 (moderate)
Secondary Threat:	fencing blocks movement	Severity	5 (severe/imminent)
Mgmt Recommendations	modify fence to allow movement if animals won't move through undercrossing?		
Comments:			

# HMP Wildlife Movement Pinchpoint Description

## LOCATION DESCRIPTION

Corridor	CC2	Point Code:	CC2-11	Assessment Date	9/12/2013	Surveyors:	J. Henry, D. Dirks, ESA
Latitude:	33.11319670600		Longitude:	-117.28405694000		GPS Datum:	WGS 84
Nearest River:	upland						
Nearest Road	Poinsettia Lane, W of Ambrosia Lane			Road Conditions:			
Structure Type:	at-grade crossing		Multi Chambers?			Structure Material	
Bottom Type:							
Height(m):		Width (m)		Length (m):		Openness Ratio:	
Description of Constraints							
Access Logistics							
Fencing:							
Camera Options:							
Tracking Potential							
Species/Sign Observed:							

## DESCRIPTION OF VEGETATION CC2-11

N or E Entrance	Veg. Thickness	open	Dominant Vegetation Type	shrubs		
Cover Classes at 20	Shrubs		Grass/Herbs		Trees:	
	Bare/Rock:		Native Species:		Exotic Species	
S or W Entranc	Veg. Thickness	moderately blocked	Dominant Vegetation Typ	shrubs		
Cover Classes at 20	Shrubs		Grass/Herb		Trees:	
	Bare/Rock:		Native Species:		Exotic Species	
Veg. Comments:						

## THREATS AND MANAGEMENT RECOMMENDATIONS CC2-11

Primary Threat:	busy roadway	Severity	4 (high)
Secondary Threat:	at-grade crossing	Severity	4 (high)
Mgmt Recommendations			
Comments:			
	Other priority-roadkill		



# HMP Wildlife Movement Pinchpoint Description

## LOCATION DESCRIPTION

Corridor	CC2	Point Code:	CC2-12	Assessment Date	9/12/2013	Surveyors:	J. Henry, D. Dirks, ESA		
Latitude:	33.10939551300		Longitude:	-117.28376971600		GPS Datum:	WGS 84		
Nearest River:	upland								
Nearest Road	Docena Road		Road Conditions:	2-lane, undivided, not busy					
Structure Type:	at-grade crossing		Multi Chambers?			Structure Material			
Bottom Type:									
Height(m):		Width (m)		Length (m):		Openness Ratio:		Constraints	no
Description of Constraints									
Access Logistics	Park on Docena Rd.								
Fencing:	no fencing								
Camera Options:	too unconfined for camera								
Tracking Potential	potential along trails N side								
Species/Sign Observed:	domestic dog								

## DESCRIPTION OF VEGETATION CC2-12

N or E Entrance	Veg. Thickness		Dominant Vegetation Type				
Cover Classes at 20	Shrubs	4 (51-75%)	Grass/Herbs	0 (less than 1%)	Trees:	0 (less than 1%)	
	Bare/Rock:	2 (6-25%)	Native Species:	4 (51-75%)	Exotic Species	0 (less than 1%)	
S or W Entranc	Veg. Thickness		Dominant Vegetation Typ				
Cover Classes at 20	Shrubs	5 (76-100%)	Grass/Herb	0 (less than 1%)	Trees:	0 (less than 1%)	
	Bare/Rock:	2 (6-25%)	Native Species:	5 (76-100%)	Exotic Species	0 (less than 1%)	
Veg. Comments:							

## THREATS AND MANAGEMENT RECOMMENDATIONS CC2-12

Primary Threat:	human use	Severity	2 (low)
Secondary Threat:	roadway	Severity	2 (low)
Mgmt Recommendations	none needed		
Comments:			

# HMP Wildlife Movement Pinchpoint Description

## LOCATION DESCRIPTION

Corridor	CC2	Point Code:	CC2-13	Assessment Date	9/12/2013	Surveyors:	J. Henry, D. Dirks, ESA		
Latitude:	33.09933839900		Longitude:	-117.28106981100		GPS Datum:	WGS 84		
Nearest River:	upland								
Nearest Road	Aviara Parkway, W of Batiquitos Drive		Road Conditions:	4-lane, divided, very busy					
Structure Type:	golf cart under-crossing		Multi Chambers?	no		Structure Material	concrete		
Bottom Type:	hard-armored								
Height(m):	8.30	Width (m)	13.10	Length (m):	147.20	Openness Ratio:	0.7	Constraints	yes
Description of Constraints	human use; lighting, fencing								
Access Logistics	Park on Kingfisher (access from south only)								
Fencing:	nearly continuous wrought iron fencing along both sides of Aviara Parkway								
Camera Options:	Not good for cameras due to human use (golf carts; could have night-only operation)								
Tracking Potential	no								
Species/Sign Observed:	none								

## DESCRIPTION OF VEGETATION CC2-13

N or E Entrance	Veg. Thickness	moderately open	Dominant Vegetation Type	shrubs		
Cover Classes at 20	Shrubs	2 (6-25%)	Grass/Herbs	3 (26-50%)	Trees:	3 (26-50%)
	Bare/Rock:	2 (6-25%)	Native Species:	0 (less than 1%)	Exotic Species	5 (76-100%)
S or W Entranc	Veg. Thickness	moderately open	Dominant Vegetation Typ	trees		
Cover Classes at 20	Shrubs	2 (6-25%)	Grass/Herb	2 (6-25%)	Trees:	2 (6-25%)
	Bare/Rock:	3 (26-50%)	Native Species:	0 (less than 1%)	Exotic Species	4 (51-75%)
Veg. Comments:						

## THREATS AND MANAGEMENT RECOMMENDATIONS CC2-13

Primary Threat:	human use	Severity	3 (moderate)
Secondary Threat:	busy roadway/fencing	Severity	3 (moderate)
Mgmt Recommendations	modify fence to allow movement if animals won't move through undercrossing?		
Comments:			



# HMP Wildlife Movement Pinchpoint Description

## LOCATION DESCRIPTION

Corridor	CC2	Point Code:	CC2-14	Assessment Date	9/12/2013	Surveyors:	J. Henry, D. Dirks, ESA		
Latitude:	33.09361158500	Longitude:	-117.28262081900	GPS Datum:	WGS 84				
Nearest River:	North of Batiquitos Lagoon								
Nearest Road	Batiquitos Drive		Road Conditions:	2-lane, undivided, moderately busy					
Structure Type:	golf cart under-crossing		Multi Chambers?	no	Structure Material	concrete			
Bottom Type:	hard-armored								
Height(m):	9.90	Width (m)	10.60	Length (m):	92.00	Openness Ratio:	1.1	Constraints	yes
Description of Constraints	human use; lighting, fencing								
Access Logistics	Park on Spoonbill Lane								
Fencing:	wrought iron fencing along Batiquitos Dr.								
Camera Options:	Not good for cameras due to human use (golf carts; could have night-only operation)								
Tracking Potential	no								
Species/Sign Observed:	groundskeeper says that coyotes, raccoons and opossum are common								

## DESCRIPTION OF VEGETATION CC2-14

N or E Entrance	Veg. Thickness	moderately open	Dominant Vegetation Type	shrubs		
Cover Classes at 20	Shrubs	3 (26-50%)	Grass/Herbs	0 (less than 1%)	Trees:	3 (26-50%)
	Bare/Rock:	2 (6-25%)	Native Species:	0 (less than 1%)	Exotic Species	5 (76-100%)
S or W Entranc	Veg. Thickness	moderately open	Dominant Vegetation Typ	shrubs		
Cover Classes at 20	Shrubs	2 (6-25%)	Grass/Herb	4 (51-75%)	Trees:	2 (6-25%)
	Bare/Rock:	2 (6-25%)	Native Species:	0 (less than 1%)	Exotic Species	5 (76-100%)
Veg. Comments:						

## THREATS AND MANAGEMENT RECOMMENDATIONS CC2-14

Primary Threat:	human use	Severity	3 (moderate)
Secondary Threat:	busy roadway/fencing	Severity	3 (moderate)
Mgmt Recommendations	modify fence to allow movement if animals won't move through undercrossing?		
Comments:			

# HMP Wildlife Movement Pinchpoint Description

## LOCATION DESCRIPTION

Corridor	CC3	Point Code:	CC3-1	Assessment Date	8/28/2013	Surveyors:	M. Grim, V. Mai		
Latitude:	33.10226100000		Longitude:	-117.26144100000		GPS Datum:	WGS 84		
Nearest River:	upland								
Nearest Road	Alga Road; La Costa Resort golf course		Road Conditions:	4 lane open					
Structure Type:	pipe		Multi Chambers?	no		Structure Material	concrete		
Bottom Type:	hard-armored, water								
Height(m):	1.52	Width (m)	1.52	Length (m):	84.98	Openness Ratio:	0.0	Constraints	yes
Description of Constraints	persistent water, pooled on north side								
Access Logistics	Turn off on south east side for parking								
Fencing:	None								
Camera Options:	no								
Tracking Potential	no								
Species/Sign Observed:	None								

## DESCRIPTION OF VEGETATION CC3-1

N or E Entrance	Veg. Thickness	moderately blocked	Dominant Vegetation Type	tall grasses/forbs		
Cover Classes at 20	Shrubs	0 (less than 1%)	Grass/Herbs	4 (51-75%)	Trees:	0 (less than 1%)
	Bare/Rock:	0 (less than 1%)	Native Species:	4 (51-75%)	Exotic Species	1 (1-5%)
S or W Entranc	Veg. Thickness	moderately open	Dominant Vegetation Typ	trees		
Cover Classes at 20	Shrubs		Grass/Herb		Trees:	
	Bare/Rock:		Native Species:		Exotic Species	
Veg. Comments:						

## THREATS AND MANAGEMENT RECOMMENDATIONS CC3-1

Primary Threat:	surrounding area highly disturbed or developed	Severity	5 (severe/imminent)
Secondary Threat:	undercrossing very long	Severity	3 (moderate)
Mgmt Recommendations			
Comments:			



# HMP Wildlife Movement Pinchpoint Description

## LOCATION DESCRIPTION

Corridor	CC3	Point Code:	CC3-2	Assessment Date	8/28/2013	Surveyors:	M. Grim, V. Mai		
Latitude:	33.11373600000		Longitude:	-117.25963600000		GPS Datum:	WGS 84		
Nearest River:	upland								
Nearest Road	Alicante Road, S of Poinsettia Lane		Road Conditions:	major arterial, 10 lanes, 6"curb median					
Structure Type:	at grade crossing		Multi Chambers?	no		Structure Material			
Bottom Type:	gravel, dirt, hard-armored, vegetation								
Height(m):		Width (m)		Length (m):	44.65	Openness Ratio:	0.0	Constraints	yes
Description of Constraints	major arterial, at grade crossing								
Access Logistics	Parking on NE side								
Fencing:	None								
Camera Options:	no								
Tracking Potential	no								
Species/Sign Observed:	None								

## DESCRIPTION OF VEGETATION CC3-2

N or E Entrance	Veg. Thickness	open	Dominant Vegetation Type	shrubs		
Cover Classes at 20	Shrubs	2 (6-25%)	Grass/Herbs	0 (less than 1%)	Trees:	5 (76-100%)
	Bare/Rock:	1 (1-5%)	Native Species:	5 (76-100%)	Exotic Species	0 (less than 1%)
S or W Entranc	Veg. Thickness	open	Dominant Vegetation Typ	short grasses/forbs		
Cover Classes at 20	Shrubs		Grass/Herb		Trees:	
	Bare/Rock:		Native Species:		Exotic Species	
Veg. Comments:						

## THREATS AND MANAGEMENT RECOMMENDATIONS CC3-2

Primary Threat:	undercrossing very small	Severity	5 (severe/imminent)
Secondary Threat:	undercrossing bottom permanently wet	Severity	5 (severe/imminent)
Mgmt Recommendations			
Comments:			

# HMP Wildlife Movement Pinchpoint Description

## LOCATION DESCRIPTION

Corridor	CC3	Point Code:	CC3-4	Assessment Date	8/28/2013	Surveyors:	M. Grim, V. Mai		
Latitude:	33.12077300000		Longitude:	-117.23546600000		GPS Datum:	WGS 84		
Nearest River:	upland								
Nearest Road	Melrose Drive, S of Poinsettia Lane			Road Conditions:	3 lane, no median				
Structure Type:	at grade crossing		Multi Chambers?	no		Structure Material			
Bottom Type:	dirt, gravel, hard armored, vegetation								
Height(m):		Width (m)		Length (m):	17.00	Openness Ratio:	0.0	Constraints	yes
Description of Constraints	at grade crossing								
Access Logistics									
Fencing:	None								
Camera Options:	no								
Tracking Potential	no								
Species/Sign Observed:	None								

## DESCRIPTION OF VEGETATION CC3-4

N or E Entrance	Veg. Thickness	open		Dominant Vegetation Type	short grasses/forbs				
Cover Classes at 20	Shrubs	3 (26-50%)		Grass/Herbs	2 (6-25%)		Trees:	3 (26-50%)	
	Bare/Rock:	1 (1-5%)		Native Species:	5 (76-100%)		Exotic Species	2 (6-25%)	
S or W Entranc	Veg. Thickness	open		Dominant Vegetation Typ	shrubs				
Cover Classes at 20	Shrubs			Grass/Herb			Trees:		
	Bare/Rock:			Native Species:			Exotic Species		
Veg. Comments:									

## THREATS AND MANAGEMENT RECOMMENDATIONS CC3-4

Primary Threat:	busy roadway			Severity	5 (severe/imminent)		
Secondary Threat:	at-grade crossing			Severity	5 (severe/imminent)		
Mgmt Recommendations							
Comments:							



# HMP Wildlife Movement Pinchpoint Description

## LOCATION DESCRIPTION

Corridor	CC3	Point Code:	CC3-5	Assessment Date	8/28/2013	Surveyors:	M. Grim, V. Mai		
Latitude:	33.13093400000		Longitude:	-117.23108100000		GPS Datum:	WGS 84		
Nearest River:	upland								
Nearest Road	Palomar Airport Road, S of Lionshead Avenu		Road Conditions:	4 lane with curb median					
Structure Type:	at grade crossing		Multi Chambers?	no		Structure Material			
Bottom Type:	dirt, hard-armored, vegetation								
Height(m):		Width (m)		Length (m):	27.51	Openness Ratio:	0.0	Constraints	yes
Description of Constraints	fencing on south side surrounding golf course, at grade crossing. Future development of alga norte								
Access Logistics	parking at turnoff just west of alga norte park, on north side of poinsettia rd.								
Fencing:	yes, along south side lining golf course								
Camera Options:	no								
Tracking Potential	no								
Species/Sign Observed:	None								

## DESCRIPTION OF VEGETATION CC3-5

N or E Entrance	Veg. Thickness	moderately open		Dominant Vegetation Type	shrubs				
Cover Classes at 20	Shrubs	3 (26-50%)		Grass/Herbs	2 (6-25%)		Trees:	1 (1-5%)	
	Bare/Rock:	4 (51-75%)		Native Species:	3 (26-50%)		Exotic Species	4 (51-75%)	
S or W Entranc	Veg. Thickness	open		Dominant Vegetation Typ	short grasses/forbs				
Cover Classes at 20	Shrubs			Grass/Herb			Trees:		
	Bare/Rock:			Native Species:			Exotic Species		
Veg. Comments:									

## THREATS AND MANAGEMENT RECOMMENDATIONS CC3-5

Primary Threat:	busy roadway		Severity	5 (severe/imminent)	
Secondary Threat:	at-grade crossing		Severity	5 (severe/imminent)	
Mgmt Recommendations					
Comments:					

# HMP Wildlife Movement Pinchpoint Description

## LOCATION DESCRIPTION

Corridor	CC3	Point Code:	CC3-6a	Assessment Date	8/28/2013	Surveyors:	M. Grim, V. Mai		
Latitude:	33.13281100000		Longitude:	-117.23205900000		GPS Datum:	WGS 84		
Nearest River:	upland								
Nearest Road	Lionshead Avenue			Road Conditions:	golf cart access road				
Structure Type:	box culvert		Multi Chambers?	no		Structure Material	metal		
Bottom Type:	hard armored								
Height(m):	2.44	Width (m)	3.66	Length (m):	33.53	Openness Ratio:	0.3	Constraints	yes
Description of Constraints	located entirely within fenced golf course grounds								
Access Logistics	No access from street. Must enter through golf course. Private property								
Fencing:	yes, surrounding golf course								
Camera Options:	no								
Tracking Potential	no								
Species/Sign Observed:	None								

## DESCRIPTION OF VEGETATION CC3-6a

N or E Entrance	Veg. Thickness	moderately blocked		Dominant Vegetation Type	trees				
Cover Classes at 20	Shrubs	2 (6-25%)		Grass/Herbs	2 (6-25%)		Trees:	2 (6-25%)	
	Bare/Rock:	2 (6-25%)		Native Species:	3 (26-50%)		Exotic Species	2 (6-25%)	
S or W Entranc	Veg. Thickness	open		Dominant Vegetation Typ	short grasses/forbs				
Cover Classes at 20	Shrubs			Grass/Herb			Trees:		
	Bare/Rock:			Native Species:			Exotic Species		
Veg. Comments:									

## THREATS AND MANAGEMENT RECOMMENDATIONS CC3-6a

Primary Threat:	graffiti		Severity	5 (severe/imminent)	
Secondary Threat:	other human use		Severity	5 (severe/imminent)	
Mgmt Recommendations					
Comments:					



# HMP Wildlife Movement Pinchpoint Description

## LOCATION DESCRIPTION

Corridor	CC3	Point Code:	CC3-6a	Assessment Date	8/28/2013	Surveyors:	M. Grim, V. Mai		
Latitude:	33.13281100000		Longitude:	-117.23205900000		GPS Datum:	WGS 84		
Nearest River:	upland								
Nearest Road	Lionshead Avenue		Road Conditions:	4 lane with curb median					
Structure Type:	box culvert		Multi Chambers?	3		Structure Material	concrete		
Bottom Type:	hard-armored, water								
Height(m):	2.13	Width (m)	2.13	Length (m):	33.80	Openness Ratio:	0.1	Constraints	yes
Description of Constraints	persistent water, thick vegetation								
Access Logistics	three storm pipes just east of CC3-6a located in thick brush								
Fencing:	on south side								
Camera Options:	no								
Tracking Potential	no								
Species/Sign Observed:	None								

## DESCRIPTION OF VEGETATION CC3-6a

N or E Entrance	Veg. Thickness	moderately blocked		Dominant Vegetation Type	trees				
Cover Classes at 20	Shrubs	2 (6-25%)		Grass/Herbs	2 (6-25%)		Trees:	2 (6-25%)	
	Bare/Rock:	2 (6-25%)		Native Species:	3 (26-50%)		Exotic Species	2 (6-25%)	
S or W Entranc	Veg. Thickness	open		Dominant Vegetation Typ	short grasses/forbs				
Cover Classes at 20	Shrubs			Grass/Herb			Trees:		
	Bare/Rock:			Native Species:			Exotic Species		
Veg. Comments:									

## THREATS AND MANAGEMENT RECOMMENDATIONS CC3-6a

Primary Threat:	graffiti		Severity	5 (severe/imminent)	
Secondary Threat:	other human use		Severity	5 (severe/imminent)	
Mgmt Recommendations					
Comments:					
In spreadsheet					

# HMP Wildlife Movement Pinchpoint Description

## LOCATION DESCRIPTION

Corridor	M1a	Point Code:	M1-1	Assessment Date	8/28/2013	Surveyors:	M. Grim, V. Mai		
Latitude:	33.16634497300		Longitude:	-117.30480911200		GPS Datum:	WGS 84		
Nearest River:	upland								
Nearest Road	Carlsbad Village Drive, W of Tamarack Aven		Road Conditions:	3 lane, no median					
Structure Type:	at grade crossing		Multi Chambers?	no		Structure Material			
Bottom Type:	hard-armored, dirt, vegetation								
Height(m):		Width (m)		Length (m):	13.39	Openness Ratio:	0.0	Constraints	yes
Description of Constraints	fencing on south side, steep slope on north side								
Access Logistics	park on Victoria								
Fencing:	on south side along village H								
Camera Options:	no								
Tracking Potential	no								
Species/Sign Observed:	none								

## DESCRIPTION OF VEGETATION M1-1

N or E Entrance	Veg. Thickness	open	Dominant Vegetation Type	shrubs		
Cover Classes at 20	Shrubs		Grass/Herbs		Trees:	
	Bare/Rock:		Native Species:		Exotic Species	
S or W Entranc	Veg. Thickness	none	Dominant Vegetation Typ			
Cover Classes at 20	Shrubs		Grass/Herb		Trees:	
	Bare/Rock:		Native Species:		Exotic Species	
Veg. Comments:						

## THREATS AND MANAGEMENT RECOMMENDATIONS M1-1

Primary Threat:	lack of native vegetation surrounding one or both entrances	Severity	3 (moderate)
Secondary Threat:	at-grade crossing	Severity	3 (moderate)
Mgmt Recommendations			
Comments:			



# HMP Wildlife Movement Pinchpoint Description

## LOCATION DESCRIPTION

Corridor	M1a	Point Code:	M1-2	Assessment Date	8/28/2013	Surveyors:	M. Grim, V. Mai		
Latitude:	33.16402209500	Longitude:	-117.30071788200	GPS Datum:	WGS 84				
Nearest River:	upland								
Nearest Road	Tamarack Avenue, N of Edinburgh Drive			Road Conditions:	5 lane, no median				
Structure Type:	arch culvert		Multi Chambers?	no	Structure Material	metal			
Bottom Type:	hard-armored, dirt								
Height(m):	4.57	Width (m)	3.66	Length (m):	19.50	Openness Ratio:	0.9	Constraints	yes
Description of Constraints	huge gate covers both entrances								
Access Logistics	park on Glasgow and walk north on tamarack								
Fencing:	at both entrances								
Camera Options:	or obscured midway through								
Tracking Potential	yes								
Species/Sign Observed:	none								

## DESCRIPTION OF VEGETATION M1-2

N or E Entrance	Veg. Thickness	open	Dominant Vegetation Type	trees		
Cover Classes at 20	Shrubs		Grass/Herbs		Trees:	
	Bare/Rock:		Native Species:		Exotic Species	
S or W Entranc	Veg. Thickness	open	Dominant Vegetation Typ	short grasses/forbs		
Cover Classes at 20	Shrubs		Grass/Herb		Trees:	
	Bare/Rock:		Native Species:		Exotic Species	
Veg. Comments:						

## THREATS AND MANAGEMENT RECOMMENDATIONS M1-2

Primary Threat:	other human use	Severity	4 (high)
Secondary Threat:		Severity	
Mgmt Recommendations			
Comments:			

# HMP Wildlife Movement Pinchpoint Description

## LOCATION DESCRIPTION

Corridor	M1a	Point Code:	M1-3	Assessment Date	8/28/2013	Surveyors:	M. Grim, V. Mai		
Latitude:	33.16348603800		Longitude:	-117.29965060500		GPS Datum:	WGS 84		
Nearest River:	upland								
Nearest Road	Glasgow Drive		Road Conditions:	2 lane minimal traffic					
Structure Type:	at grade crossing		Multi Chambers?	no		Structure Material	hard-armored		
Bottom Type:	hard-armored, dirt, vegetation								
Height(m):		Width (m)		Length (m):	13.84	Openness Ratio:	0.0	Constraints	no
Description of Constraints	minimal traffic, no fencing, but at grade								
Access Logistics	Park on Glasgow								
Fencing:	none								
Camera Options:	no								
Tracking Potential	no								
Species/Sign Observed:	none								

## DESCRIPTION OF VEGETATION M1-3

N or E Entrance	Veg. Thickness	open	Dominant Vegetation Type	shrubs		
Cover Classes at 20	Shrubs		Grass/Herbs		Trees:	
	Bare/Rock:		Native Species:		Exotic Species	
S or W Entranc	Veg. Thickness	open	Dominant Vegetation Typ	shrubs		
Cover Classes at 20	Shrubs		Grass/Herb		Trees:	
	Bare/Rock:		Native Species:		Exotic Species	
Veg. Comments:						

## THREATS AND MANAGEMENT RECOMMENDATIONS M1-3

Primary Threat:	at-grade crossing	Severity	2 (low)
Secondary Threat:	other human use	Severity	2 (low)
Mgmt Recommendations			
Comments:			



# HMP Wildlife Movement Pinchpoint Description

## LOCATION DESCRIPTION

Corridor	M1a	Point Code:	M1-4	Assessment Date	8/28/2013	Surveyors:	M. Grim, V. Mai		
Latitude:	33.15818484900	Longitude:	-117.30423989700	GPS Datum:	WGS 84				
Nearest River:	upland								
Nearest Road	Tamarack Avenue, E of Pontiac Drive			Road Conditions:	5 lane, moderate traffic				
Structure Type:	at grade crossing		Multi Chambers?	no	Structure Material	hard-armored			
Bottom Type:	hard-armored, dirt, vegetation								
Height(m):		Width (m)		Length (m):	21.31	Openness Ratio:	0.0	Constraints	yes
Description of Constraints	fencing on west side and moderately steep slope on the east								
Access Logistics	park on Pontiac or up by RV storage								
Fencing:	west side								
Camera Options:	no								
Tracking Potential	no								
Species/Sign Observed:	none								

## DESCRIPTION OF VEGETATION M1-4

N or E Entrance	Veg. Thickness	moderately open	Dominant Vegetation Type	shrubs		
Cover Classes at 20	Shrubs		Grass/Herbs		Trees:	
	Bare/Rock:		Native Species:		Exotic Species	
S or W Entranc	Veg. Thickness	open	Dominant Vegetation Typ	short grasses/forbs		
Cover Classes at 20	Shrubs		Grass/Herb		Trees:	
	Bare/Rock:		Native Species:		Exotic Species	
Veg. Comments:						

## THREATS AND MANAGEMENT RECOMMENDATIONS M1-4

Primary Threat:	at-grade crossing	Severity	2 (low)
Secondary Threat:	other human use	Severity	2 (low)
Mgmt Recommendations			
Comments:			

# HMP Wildlife Movement Pinchpoint Description

## LOCATION DESCRIPTION

Corridor	M2a	Point Code:	M2-1	Assessment Date	8/8/2013	Surveyors:	R. Humphrey, J. Henry, M. Grim.		
Latitude:	33.15509357600		Longitude:	-117.28751728200		GPS Datum:	WGS 84		
Nearest River:	none								
Nearest Road	Cannon Road/College Blvd		Road Conditions:	very busy surrounding roads					
Structure Type:	box culvert with apron		Multi Chambers?	no		Structure Material	concrete		
Bottom Type:	hard-armored								
Height(m):	2.10	Width (m)	3.40	Length (m):	179.90	Openness Ratio:	0.0	Constraints	yes
Description of Constraints	too long to measure								
Access Logistics	not likely to be used by wildlife								
Fencing:									
Camera Options:	not good for camera								
Tracking Potential	no								
Species/Sign Observed:	raccoon								

## DESCRIPTION OF VEGETATION M2-1

N or E Entrance	Veg. Thickness	open	Dominant Vegetation Type	short grasses/forbs		
Cover Classes at 20	Shrubs		Grass/Herbs		Trees:	
	Bare/Rock:		Native Species:		Exotic Species	
S or W Entranc	Veg. Thickness	blocked	Dominant Vegetation Typ	shrubs		
Cover Classes at 20	Shrubs		Grass/Herb		Trees:	
	Bare/Rock:		Native Species:		Exotic Species	
Veg. Comments:						

## THREATS AND MANAGEMENT RECOMMENDATIONS M2-1

Primary Threat:	undercrossing very long	Severity	5 (severe/imminent)
Secondary Threat:	cannot see to other end of the undercrossing	Severity	5 (severe/imminent)
Mgmt Recommendations	unknown		
Comments:	W entrance opens near new high school; will probably be a lot more human use in the area; there is a long off-shoot pipe near W entrance		
	Other priority		



# HMP Wildlife Movement Pinchpoint Description

## LOCATION DESCRIPTION

Corridor	M5	Point Code:	M5-1	Assessment Date		Surveyors:			
Latitude:	33.14565200000		Longitude:	-117.29335800000		GPS Datum:	WGS 84		
Nearest River:	none								
Nearest Road	Frost Avenue, W of Longfellow Drive			Road Conditions:					
Structure Type:	box culvert		Multi Chambers?			Structure Material			
Bottom Type:									
Height(m):	0.90	Width (m)	1.80	Length (m):	32.30	Openness Ratio:	0.1	Constraints	
Description of Constraints									
Access Logistics									
Fencing:									
Camera Options:									
Tracking Potential									
Species/Sign Observed:									

## DESCRIPTION OF VEGETATION M5-1

N or E Entrance	Veg. Thickness	moderately open		Dominant Vegetation Type	trees			
Cover Classes at 20	Shrubs			Grass/Herbs			Trees:	
	Bare/Rock:			Native Species:			Exotic Species	
S or W Entranc	Veg. Thickness	moderately open		Dominant Vegetation Typ	trees			
Cover Classes at 20	Shrubs			Grass/Herb			Trees:	
	Bare/Rock:			Native Species:			Exotic Species	
Veg. Comments:								

## THREATS AND MANAGEMENT RECOMMENDATIONS M5-1

Primary Threat:	no fencing to guide wildlife away from road		Severity	2 (low)	
Secondary Threat:			Severity		
Mgmt Recommendations					
Comments:					
	not visited				

# HMP Wildlife Movement Pinchpoint Description

## LOCATION DESCRIPTION

Corridor	M5	Point Code:	M5-2a	Assessment Date		Surveyors:	
Latitude:	33.13324400000		Longitude:	-117.30106700000		GPS Datum:	WGS 84
Nearest River:	north of The Crossings golf course						
Nearest Road	Faraday Avenue			Road Conditions:			
Structure Type:			Multi Chambers?		Structure Material		
Bottom Type:							
Height(m):		Width (m)		Length (m):		Openness Ratio:	
Description of Constraints							
Access Logistics							
Fencing:							
Camera Options:							
Tracking Potential							
Species/Sign Observed:							

## DESCRIPTION OF VEGETATION M5-2a

N or E Entrance	Veg. Thickness	open	Dominant Vegetation Type	short grasses/forbs		
Cover Classes at 20	Shrubs		Grass/Herbs		Trees:	
	Bare/Rock:		Native Species:		Exotic Species	
S or W Entranc	Veg. Thickness	none	Dominant Vegetation Typ			
Cover Classes at 20	Shrubs		Grass/Herb		Trees:	
	Bare/Rock:		Native Species:		Exotic Species	
Veg. Comments:						

## THREATS AND MANAGEMENT RECOMMENDATIONS M5-2a

Primary Threat:	undercrossing entrance obstructed by gate or fencing	Severity	4 (high)
Secondary Threat:	other human use	Severity	4 (high)
Mgmt Recommendations			
Comments:			
	undercrossing to golf course; wildlife probably cross over road		



# HMP Wildlife Movement Pinchpoint Description

## LOCATION DESCRIPTION

Corridor	M5	Point Code:	M5-2b	Assessment Date		Surveyors:	
Latitude:	33.13415300000		Longitude:	-117.29595100000		GPS Datum:	WGS 84
Nearest River:	north of The Crossings golf course						
Nearest Road	Faraday Avenue		Road Conditions:				
Structure Type:	at grade crossing		Multi Chambers?			Structure Material	
Bottom Type:							
Height(m):		Width (m)		Length (m):		Openness Ratio:	
Description of Constraints							
Access Logistics							
Fencing:							
Camera Options:							
Tracking Potential							
Species/Sign Observed:							

## DESCRIPTION OF VEGETATION M5-2b

N or E Entrance	Veg. Thickness	moderately blocked	Dominant Vegetation Type	shrubs		
Cover Classes at 20	Shrubs		Grass/Herbs		Trees:	
	Bare/Rock:		Native Species:		Exotic Species	
S or W Entranc	Veg. Thickness	moderately blocked	Dominant Vegetation Typ	shrubs		
Cover Classes at 20	Shrubs		Grass/Herb		Trees:	
	Bare/Rock:		Native Species:		Exotic Species	
Veg. Comments:						

## THREATS AND MANAGEMENT RECOMMENDATIONS M5-2b

Primary Threat:	busy roadway	Severity	4 (high)
Secondary Threat:	at-grade crossing	Severity	4 (high)
Mgmt Recommendations			
Comments:			
	at grade crossing		

# HMP Wildlife Movement Pinchpoint Description

## LOCATION DESCRIPTION

Corridor	M6a	Point Code:	M6-1	Assessment Date	10/1/2013	Surveyors:	M. Grim, V. Mai		
Latitude:	33.12194098300	Longitude:	-117.30597563200	GPS Datum:	WGS 84				
Nearest River:	unnamed drainage								
Nearest Road	Hidden Valley Road, S of Palomar Airport Ro			Road Conditions:	2 lane, minimal traffic				
Structure Type:	box culvert without apron	Multi Chambers?	2	Structure Material	concrete				
Bottom Type:	hard-armored, water, vegetation								
Height(m):	8.00	Width (m)	4.00	Length (m):	41.01	Openness Ratio:	0.8	Constraints	yes
Description of Constraints	persistent water, thick vegetation								
Access Logistics	park in adjacent lot								
Fencing:	west side								
Camera Options:	no								
Tracking Potential	no								
Species/Sign Observed:	none								

## DESCRIPTION OF VEGETATION M6-1

N or E Entrance	Veg. Thickness	moderately blocked	Dominant Vegetation Type	tall grasses/forbs		
Cover Classes at 20	Shrubs		Grass/Herbs		Trees:	
	Bare/Rock:		Native Species:		Exotic Species	
S or W Entranc	Veg. Thickness	moderately blocked	Dominant Vegetation Typ	tall grasses/forbs		
Cover Classes at 20	Shrubs		Grass/Herb		Trees:	
	Bare/Rock:		Native Species:		Exotic Species	
Veg. Comments:						

## THREATS AND MANAGEMENT RECOMMENDATIONS M6-1

Primary Threat:	undercrossing bottom permanently wet	Severity	4 (high)
Secondary Threat:	vegetation choking one or both entrances	Severity	4 (high)
Mgmt Recommendations			
Comments:			



# HMP Wildlife Movement Pinchpoint Description

## LOCATION DESCRIPTION

Corridor		Point Code:	M6-1aN	Assessment Date		Surveyors:	
Latitude:		Longitude:		GPS Datum:			
Nearest River:							
Nearest Road		Road Conditions:					
Structure Type:		Multi Chambers?		Structure Material			
Bottom Type:							
Height(m):		Width (m)		Length (m):		Openness Ratio:	
						Constraints	
Description of Constraints							
Access Logistics							
Fencing:							
Camera Options:							
Tracking Potential							
Species/Sign Observed:							

## DESCRIPTION OF VEGETATION M6-1aN

N or E Entrance	Veg. Thickness		Dominant Vegetation Type				
Cover Classes at 20	Shrubs		Grass/Herbs		Trees:		
	Bare/Rock:		Native Species:		Exotic Species		
S or W Entranc	Veg. Thickness		Dominant Vegetation Typ				
Cover Classes at 20	Shrubs		Grass/Herb		Trees:		
	Bare/Rock:		Native Species:		Exotic Species		
Veg. Comments:							

## THREATS AND MANAGEMENT RECOMMENDATIONS M6-1aN

Primary Threat:		Severity	
Secondary Threat:		Severity	
Mgmt Recommendations			
Comments:			

# HMP Wildlife Movement Pinchpoint Description

## LOCATION DESCRIPTION

Corridor

Point Code:

M6-1aS

Assessment Date

Surveyors:

Latitude:

Longitude:

GPS Datum:

Nearest River:

Nearest Road

Road Conditions:

Structure Type:

Multi Chambers?

Structure Material

Bottom Type:

Height(m):

Width (m)

Length (m):

Openness Ratio:

Constraints

Description of Constraints

Access Logistics

Fencing:

Camera Options:

Tracking Potential

Species/Sign Observed:

## DESCRIPTION OF VEGETATION

M6-1aS

N or E Entrance

Veg. Thickness

Dominant Vegetation Type

Cover Classes at 20

Shrubs

Grass/Herbs

Trees:

Bare/Rock:

Native Species:

Exotic Species

S or W Entranc

Veg. Thickness

Dominant Vegetation Typ

Cover Classes at 20

Shrubs

Grass/Herb

Trees:

Bare/Rock:

Native Species:

Exotic Species

Veg. Comments:

## THREATS AND MANAGEMENT RECOMMENDATIONS

M6-1aS

Primary Threat:

Severity

Secondary Threat:

Severity

Mgmt Recommendations

Comments:



# HMP Wildlife Movement Pinchpoint Description

## LOCATION DESCRIPTION

Corridor		Point Code:	M6-1b	Assessment Date		Surveyors:	
Latitude:		Longitude:		GPS Datum:			
Nearest River:							
Nearest Road		Road Conditions:					
Structure Type:		Multi Chambers?		Structure Material			
Bottom Type:							
Height(m):		Width (m)		Length (m):		Openness Ratio:	
						Constraints	
Description of Constraints							
Access Logistics							
Fencing:							
Camera Options:							
Tracking Potential							
Species/Sign Observed:							

## DESCRIPTION OF VEGETATION M6-1b

N or E Entrance	Veg. Thickness		Dominant Vegetation Type				
Cover Classes at 20	Shrubs		Grass/Herbs		Trees:		
	Bare/Rock:		Native Species:		Exotic Species		
S or W Entranc	Veg. Thickness		Dominant Vegetation Typ				
Cover Classes at 20	Shrubs		Grass/Herb		Trees:		
	Bare/Rock:		Native Species:		Exotic Species		
Veg. Comments:							

## THREATS AND MANAGEMENT RECOMMENDATIONS M6-1b

Primary Threat:		Severity	
Secondary Threat:		Severity	
Mgmt Recommendations			
Comments:			

# HMP Wildlife Movement Pinchpoint Description

## LOCATION DESCRIPTION

Corridor	M6a	Point Code:	M6-2	Assessment Date	10/1/2013	Surveyors:	M. Grim, V. Mai		
Latitude:	33.12284785400	Longitude:	-117.30181992800	GPS Datum:	WGS 84				
Nearest River:	unnamed drainage								
Nearest Road	Aviara Parkway, S of Palomar Airport Road		Road Conditions:	busy, 6 lane road, curb divider					
Structure Type:	box culvert without apron	Multi Chambers?	2	Structure Material	concrete				
Bottom Type:	hard-armored, water								
Height(m):	8.00	Width (m)	8.00	Length (m):	153.01	Openness Ratio:	0.4	Constraints	yes
Description of Constraints	persistent water								
Access Logistics	park near 24hr fitness, walk west along trail								
Fencing:	along culvert and both sides of road								
Camera Options:	potentially, however high human traffic								
Tracking Potential	no								
Species/Sign Observed:	none								

## DESCRIPTION OF VEGETATION M6-2

N or E Entrance	Veg. Thickness	moderately open	Dominant Vegetation Type	tall grasses/forbs		
Cover Classes at 20	Shrubs		Grass/Herbs		Trees:	
	Bare/Rock:		Native Species:		Exotic Species	
S or W Entranc	Veg. Thickness	moderately open	Dominant Vegetation Typ	tall grasses/forbs		
Cover Classes at 20	Shrubs		Grass/Herb		Trees:	
	Bare/Rock:		Native Species:		Exotic Species	
Veg. Comments:						

## THREATS AND MANAGEMENT RECOMMENDATIONS M6-2

Primary Threat:	graffiti	Severity	4 (high)
Secondary Threat:	other human use	Severity	4 (high)
Mgmt Recommendations			
Comments:	Standing water only on west side		



# HMP Wildlife Movement Pinchpoint Description

## LOCATION DESCRIPTION

Corridor	M6a	Point Code:	M6-3	Assessment Date	10/1/2013	Surveyors:	M. Grim, V. Mai		
Latitude:	33.12260275500	Longitude:	-117.30009326200	GPS Datum:	WGS 84				
Nearest River:	unnamed drainage								
Nearest Road	End of Laurel Tree Way, SE of Aviara Parkwa			Road Conditions:	intermittently busy depending on time of day				
Structure Type:	box culvert without apron		Multi Chambers?	4	Structure Material	concrete			
Bottom Type:	hard-armored, vegetation								
Height(m):	1.20	Width (m)	3.70	Length (m):	30.50	Openness Ratio:	0.1	Constraints	yes
Description of Constraints	high traffic, rip rap bottom								
Access Logistics	park on laurel tree lane								
Fencing:	along culvert on both sides of road								
Camera Options:	potentially, however high human traffic, and low vertical clearance								
Tracking Potential	no								
Species/Sign Observed:	none								

## DESCRIPTION OF VEGETATION M6-3

N or E Entrance	Veg. Thickness	moderately blocked	Dominant Vegetation Type	trees		
Cover Classes at 20	Shrubs		Grass/Herbs		Trees:	
	Bare/Rock:		Native Species:		Exotic Species	
S or W Entranc	Veg. Thickness	moderately blocked	Dominant Vegetation Typ	trees		
Cover Classes at 20	Shrubs		Grass/Herb		Trees:	
	Bare/Rock:		Native Species:		Exotic Species	
Veg. Comments:						

## THREATS AND MANAGEMENT RECOMMENDATIONS M6-3

Primary Threat:	other human use	Severity	4 (high)
Secondary Threat:	hard bottom undercrossing	Severity	3 (moderate)
Mgmt Recommendations			
Comments:	Short undercrossing		

# HMP Wildlife Movement Pinchpoint Description

## LOCATION DESCRIPTION

Corridor	M6a	Point Code:	M6-4	Assessment Date	10/1/2013	Surveyors:	M. Grim, V. Mai
Latitude:	33.11319265500	Longitude:	-117.27462583200	GPS Datum:	WGS 84		
Nearest River:	none						
Nearest Road	Cassia Road	Road Conditions:	2 lane undivided, moderately low traffic				
Structure Type:	at grade crossing	Multi Chambers?	no	Structure Material			
Bottom Type:	hard-armored, dirt, vegetation						
Height(m):		Width (m)		Length (m):	35.00	Openness Ratio:	0.0
						Constraints	yes
Description of Constraints	fencing						
Access Logistics	look for the large beige fence, park near that						
Fencing:	fencing along north side with no visibility beyond						
Camera Options:	no						
Tracking Potential	no						
Species/Sign Observed:	none						

## DESCRIPTION OF VEGETATION M6-4

N or E Entrance	Veg. Thickness	moderately open	Dominant Vegetation Type	trees
Cover Classes at 20	Shrubs		Grass/Herbs	
			Trees:	
	Bare/Rock:		Native Species:	
			Exotic Species	
S or W Entranc	Veg. Thickness	moderately blocked	Dominant Vegetation Typ	shrubs
Cover Classes at 20	Shrubs		Grass/Herb	
			Trees:	
	Bare/Rock:		Native Species:	
			Exotic Species	
Veg. Comments:				

## THREATS AND MANAGEMENT RECOMMENDATIONS M6-4

Primary Threat:	undercrossing entrance obstructed by gate or fencing	Severity	5 (severe/imminent)
Secondary Threat:	surrounding area highly disturbed or developed	Severity	3 (moderate)
Mgmt Recommendations			
Comments:			



# HMP Wildlife Movement Pinchpoint Description

## LOCATION DESCRIPTION

Corridor	M6a	Point Code:	M6-5	Assessment Date	10/1/2013	Surveyors:	M. Grim, V. Mai		
Latitude:	33.11064538600	Longitude:	-117.27053741300	GPS Datum:	WGS 84				
Nearest River:	upland								
Nearest Road	El Camino Real, N of Poinsettia Lane			Road Conditions:	6 lane curb divided				
Structure Type:	at grade crossing		Multi Chambers?	no	Structure Material				
Bottom Type:	hard-armored, dirt, vegetation								
Height(m):		Width (m)		Length (m):	100.00	Openness Ratio:	0.0	Constraints	yes
Description of Constraints	very high traffic, steep slope on east side								
Access Logistics	park on poinsettia								
Fencing:	none								
Camera Options:	no								
Tracking Potential	no								
Species/Sign Observed:	none								

## DESCRIPTION OF VEGETATION M6-5

N or E Entrance	Veg. Thickness	moderately blocked	Dominant Vegetation Type	shrubs		
Cover Classes at 20	Shrubs		Grass/Herbs		Trees:	
	Bare/Rock:		Native Species:		Exotic Species	
S or W Entranc	Veg. Thickness	moderately open	Dominant Vegetation Typ	shrubs		
Cover Classes at 20	Shrubs		Grass/Herb		Trees:	
	Bare/Rock:		Native Species:		Exotic Species	
Veg. Comments:						

## THREATS AND MANAGEMENT RECOMMENDATIONS M6-5

Primary Threat:	busy roadway	Severity	5 (severe/imminent)
Secondary Threat:	at-grade crossing	Severity	5 (severe/imminent)
Mgmt Recommendations			
Comments:			

# HMP Wildlife Movement Pinchpoint Description

## LOCATION DESCRIPTION

Corridor	M7	Point Code:	M7-1	Assessment Date	10/1/2013	Surveyors:	M. Grim, V. Mai
Latitude:	33.13558687900	Longitude:	-117.26398500000	GPS Datum:	WGS 84		
Nearest River:	none						
Nearest Road	Faraday Avenue, W of El Fuerte Street	Road Conditions:	4 lane open				
Structure Type:	pipe	Multi Chambers?	no	Structure Material	concrete		
Bottom Type:	hard-armored, water						
Height(m):	1.52	Width (m)	1.52	Length (m):	84.98	Openness Ratio:	0.0
Constraints	yes						
Description of Constraints	persistent water, pooled on north side						
Access Logistics	Turn off on south east side for parking						
Fencing:	none						
Camera Options:	no						
Tracking Potential	no						
Species/Sign Observed:	none						

## DESCRIPTION OF VEGETATION M7-1

N or E Entrance	Veg. Thickness	none	Dominant Vegetation Type	
Cover Classes at 20	Shrubs	2 (6-25%)	Grass/Herbs	2 (6-25%)
	Trees:	1 (1-5%)		
	Bare/Rock:	1 (1-5%)	Native Species:	4 (51-75%)
	Exotic Species	1 (1-5%)		
S or W Entranc	Veg. Thickness	moderately open	Dominant Vegetation Typ	tall grasses/forbs
Cover Classes at 20	Shrubs		Grass/Herb	
	Trees:			
	Bare/Rock:		Native Species:	
	Exotic Species			
Veg. Comments:				

## THREATS AND MANAGEMENT RECOMMENDATIONS M7-1

Primary Threat:	undercrossing bottom permanently wet	Severity	4 (severe/imminent)
Secondary Threat:	undercrossing very long	Severity	3 (moderate)
Mgmt Recommendations			
Comments:			



# HMP Wildlife Movement Pinchpoint Description

## LOCATION DESCRIPTION

Corridor	M7	Point Code:	M7-2	Assessment Date	10/1/2013	Surveyors:	M. Grim, V. Mai		
Latitude:	33.13028065600	Longitude:	-117.26424395400	GPS Datum:	WGS 84				
Nearest River:	upland								
Nearest Road	Palomar Airport Road, E of El Camino Real		Road Conditions:	major arterial, 10 lanes, 6"curb median					
Structure Type:	at grade crossing		Multi Chambers?	no	Structure Material				
Bottom Type:	gravel, dirt, hard-armored, vegetation								
Height(m):		Width (m)		Length (m):	44.65	Openness Ratio:		Constraints	yes
Description of Constraints	major arterial, at grade crossing								
Access Logistics	parking on NE side								
Fencing:	none								
Camera Options:	no								
Tracking Potential	no								
Species/Sign Observed:	none								

## DESCRIPTION OF VEGETATION M7-2

N or E Entrance	Veg. Thickness	open	Dominant Vegetation Type	tall grasses/forbs				
Cover Classes at 20	Shrubs	1 (1-5%)	Grass/Herbs	0 (less than 1%)	Trees:	0 (less than 1%)		
	Bare/Rock:	2 (6-25%)	Native Species:	1 (1-5%)	Exotic Species	1 (1-5%)		
S or W Entranc	Veg. Thickness	open	Dominant Vegetation Typ	short grasses/forbs				
Cover Classes at 20	Shrubs		Grass/Herb		Trees:			
	Bare/Rock:		Native Species:		Exotic Species			
Veg. Comments:								

## THREATS AND MANAGEMENT RECOMMENDATIONS M7-2

Primary Threat:	busy roadway	Severity	5 (severe/imminent)
Secondary Threat:	busy roadway	Severity	4 (high)
Mgmt Recommendations			
Comments:			

# HMP Wildlife Movement Pinchpoint Description

## LOCATION DESCRIPTION

Corridor	M7	Point Code:	M7-3	Assessment Date	10/1/2013	Surveyors:	M. Grim, V. Mai		
Latitude:	33.12727670900	Longitude:	-117.26392466900	GPS Datum:	WGS 84				
Nearest River:	none								
Nearest Road	Gateway Rd. SE of Palomar Airport Rd/El Ca	Road Conditions:	3 lane, no median						
Structure Type:	at grade crossing	Multi Chambers?	no	Structure Material	concrete				
Bottom Type:	dirt, gravel, hard armored, vegetation								
Height(m):		Width (m)		Length (m):	17.00	Openness Ratio:		Constraints	yes
Description of Constraints	at grade crossing								
Access Logistics									
Fencing:	none								
Camera Options:	no								
Tracking Potential	no								
Species/Sign Observed:	none								

## DESCRIPTION OF VEGETATION M7-3

N or E Entrance	Veg. Thickness	open	Dominant Vegetation Type	short grasses/forbs		
Cover Classes at 20	Shrubs	0 (less than 1%)	Grass/Herbs	2 (6-25%)	Trees:	1 (1-5%)
	Bare/Rock:	0 (less than 1%)	Native Species:	0 (less than 1%)	Exotic Species	2 (6-25%)
S or W Entranc	Veg. Thickness	open	Dominant Vegetation Typ	short grasses/forbs		
Cover Classes at 20	Shrubs		Grass/Herb		Trees:	
	Bare/Rock:		Native Species:		Exotic Species	
Veg. Comments:						

## THREATS AND MANAGEMENT RECOMMENDATIONS M7-3

Primary Threat:	surrounding area highly disturbed or developed	Severity	4 (high)
Secondary Threat:	lack of native vegetation surrounding one or both entrances	Severity	3 (moderate)
Mgmt Recommendations			
Comments:			



# HMP Wildlife Movement Pinchpoint Description

## LOCATION DESCRIPTION

Corridor	M7	Point Code:	M7-4	Assessment Date	10/1/2013	Surveyors:	M. Grim, V. Mai		
Latitude:	33.12545048500		Longitude:	-117.26351768800		GPS Datum:	WGS 84		
Nearest River:	none								
Nearest Road	Town Garden Rd			Road Conditions:	3 lane, no median				
Structure Type:	at grade crossing		Multi Chambers?	no		Structure Material			
Bottom Type:	dirt, gravel, hard armored, vegetation								
Height(m):		Width (m)		Length (m):	17.00	Openness Ratio:		Constraints	yes
Description of Constraints	at grade crossing								
Access Logistics									
Fencing:	none								
Camera Options:	no								
Tracking Potential	no								
Species/Sign Observed:	none								

## DESCRIPTION OF VEGETATION M7-4

N or E Entrance	Veg. Thickness	open		Dominant Vegetation Type	short grasses/forbs				
Cover Classes at 20	Shrubs	0 (less than 1%)		Grass/Herbs	2 (6-25%)		Trees:	1 (1-5%)	
	Bare/Rock:	0 (less than 1%)		Native Species:	0 (less than 1%)		Exotic Species	2 (6-25%)	
S or W Entranc	Veg. Thickness	moderately open		Dominant Vegetation Typ	shrubs				
Cover Classes at 20	Shrubs			Grass/Herb			Trees:		
	Bare/Rock:			Native Species:			Exotic Species		
Veg. Comments:									

## THREATS AND MANAGEMENT RECOMMENDATIONS M7-4

Primary Threat:	surrounding area highly disturbed or developed			Severity	4 (high)		
Secondary Threat:	lack of native vegetation surrounding one or both entrances			Severity	3 (moderate)		
Mgmt Recommendations							
Comments:							

# HMP Wildlife Movement Pinchpoint Description

## LOCATION DESCRIPTION

Corridor	M7	Point Code:	M7-5	Assessment Date	10/1/2013	Surveyors:	M. Grim, V. Mai		
Latitude:	33.11260533700		Longitude:	-117.26526414400		GPS Datum:	WGS 84		
Nearest River:	upland								
Nearest Road	Poinsettia Lane, W of Alicante Rd			Road Conditions:	4 lane with curb median				
Structure Type:	at grade crossing		Multi Chambers?	no		Structure Material			
Bottom Type:	dirt, hard-armored, vegetation								
Height(m):		Width (m)		Length (m):	27.51	Openness Ratio:		Constraints	yes
Description of Constraints	fencing on south side surrounding golf course, at grade crossing, future development of Alga Norte								
Access Logistics	parking at turnoff just west of Alga Norte Park on north side of Poinsettia Lane								
Fencing:	yes, along south side lining golf course								
Camera Options:	no								
Tracking Potential	no								
Species/Sign Observed:	none								

## DESCRIPTION OF VEGETATION M7-5

N or E Entrance	Veg. Thickness	open		Dominant Vegetation Type	short grasses/forbs				
Cover Classes at 20	Shrubs	2 (6-25%)		Grass/Herbs	0 (less than 1%)		Trees:	1 (1-5%)	
	Bare/Rock:	1 (1-5%)		Native Species:	2 (6-25%)		Exotic Species	1 (1-5%)	
S or W Entranc	Veg. Thickness	moderately open		Dominant Vegetation Typ	trees				
Cover Classes at 20	Shrubs			Grass/Herb			Trees:		
	Bare/Rock:			Native Species:			Exotic Species		
Veg. Comments:									

## THREATS AND MANAGEMENT RECOMMENDATIONS M7-5

Primary Threat:	at-grade crossing			Severity	3 (moderate)		
Secondary Threat:	surrounding area highly disturbed or developed			Severity	3 (moderate)		
Mgmt Recommendations							
Comments:							



# HMP Wildlife Movement Pinchpoint Description

## LOCATION DESCRIPTION

Corridor	M8	Point Code:	M8-1	Assessment Date	10/1/2013	Surveyors:	M. Grim, V. Mai		
Latitude:	33.10399726500		Longitude:	-117.25867667300		GPS Datum:	WGS 84		
Nearest River:	none								
Nearest Road	Goldstone Road			Road Conditions:	2 lane, low traffic				
Structure Type:	at grade crossing		Multi Chambers?	no		Structure Material			
Bottom Type:	hard-armored, dirt, vegetation								
Height(m):		Width (m)		Length (m):	30.25	Openness Ratio:		Constraints	yes
Description of Constraints	surrounding development								
Access Logistics	park on roadside								
Fencing:	None								
Camera Options:	no								
Tracking Potential	no								
Species/Sign Observed:	none								

## DESCRIPTION OF VEGETATION M8-1

N or E Entrance	Veg. Thickness	open	Dominant Vegetation Type	shrubs		
Cover Classes at 20	Shrubs		Grass/Herbs		Trees:	
	Bare/Rock:		Native Species:		Exotic Species	
S or W Entranc	Veg. Thickness	open	Dominant Vegetation Typ	shrubs		
Cover Classes at 20	Shrubs		Grass/Herb		Trees:	
	Bare/Rock:		Native Species:		Exotic Species	
Veg. Comments:						

## THREATS AND MANAGEMENT RECOMMENDATIONS M8-1

Primary Threat:	at-grade crossing	Severity	2 (low)
Secondary Threat:	surrounding area highly disturbed or developed	Severity	2 (low)
Mgmt Recommendations			
Comments:			
	Other priority		

# HMP Wildlife Movement Pinchpoint Description

## LOCATION DESCRIPTION

Corridor	M8	Point Code:	M8-2	Assessment Date	10/1/2013	Surveyors:	M. Grim, V. Mai		
Latitude:	33.10265006700	Longitude:	-117.25566123000	GPS Datum:	WGS 84				
Nearest River:	none								
Nearest Road	Alicante Road, S of Goldstone Road			Road Conditions:	2 lane road				
Structure Type:	at grade crossing		Multi Chambers?	no	Structure Material				
Bottom Type:	hard-armored, dirt, vegetation								
Height(m):		Width (m)		Length (m):	45.00	Openness Ratio:		Constraints	yes
Description of Constraints	road and surrounding development								
Access Logistics	park on galena ave								
Fencing:	None								
Camera Options:	no								
Tracking Potential	no								
Species/Sign Observed:	none								

## DESCRIPTION OF VEGETATION M8-2

N or E Entrance	Veg. Thickness	open	Dominant Vegetation Type	shrubs		
Cover Classes at 20	Shrubs		Grass/Herbs		Trees:	
	Bare/Rock:		Native Species:		Exotic Species	
S or W Entranc	Veg. Thickness	open	Dominant Vegetation Typ	shrubs		
Cover Classes at 20	Shrubs		Grass/Herb		Trees:	
	Bare/Rock:		Native Species:		Exotic Species	
Veg. Comments:						

## THREATS AND MANAGEMENT RECOMMENDATIONS M8-2

Primary Threat:	at-grade crossing	Severity	3 (moderate)
Secondary Threat:	surrounding area highly disturbed or developed	Severity	2 (low)
Mgmt Recommendations			
Comments:			
	Other priority		



# HMP Wildlife Movement Pinchpoint Description

## LOCATION DESCRIPTION

Corridor	M8	Point Code:	M8-3	Assessment Date	10/1/2013	Surveyors:	M. Grim, V. Mai
Latitude:	33.10120180500	Longitude:	-117.25248496400	GPS Datum:	WGS 84		
Nearest River:	none						
Nearest Road	Alga Road, E of Paseo Candelero	Road Conditions:	4 lane road with curb divider and bike lanes				
Structure Type:	at grade crossing	Multi Chambers?	no	Structure Material			
Bottom Type:	hard-armored, dirt, vegetation						
Height(m):		Width (m)		Length (m):	80.00	Openness Ratio:	
						Constraints	yes
Description of Constraints	terrain and high traffic area						
Access Logistics	park at old water tower						
Fencing:	on north east side, does not impede movement						
Camera Options:	no						
Tracking Potential	no						
Species/Sign Observed:	none						

## DESCRIPTION OF VEGETATION M8-3

N or E Entrance	Veg. Thickness	moderately open	Dominant Vegetation Type	trees
Cover Classes at 20	Shrubs		Grass/Herbs	
			Trees:	
	Bare/Rock:		Native Species:	
			Exotic Species	
S or W Entranc	Veg. Thickness	open	Dominant Vegetation Typ	shrubs
Cover Classes at 20	Shrubs		Grass/Herb	
			Trees:	
	Bare/Rock:		Native Species:	
			Exotic Species	
Veg. Comments:				

## THREATS AND MANAGEMENT RECOMMENDATIONS M8-3

Primary Threat:	busy roadway	Severity	4 (high)
Secondary Threat:	at-grade crossing	Severity	4 (high)
Mgmt Recommendations			
Comments:			
Other priority			

# HMP Wildlife Movement Pinchpoint Description

## LOCATION DESCRIPTION

Corridor	M8	Point Code:	M8-4	Assessment Date	10/1/2013	Surveyors:	M. Grim, V. Mai		
Latitude:	33.09790102800	Longitude:	-117.24406182800	GPS Datum:	WGS 84				
Nearest River:	none								
Nearest Road	El Fuerte Street, E of Bolero Street	Road Conditions:	2 lane with turn lane						
Structure Type:	at grade crossing	Multi Chambers?	no	Structure Material					
Bottom Type:	hard-armored, dirt, vegetation								
Height(m):		Width (m)		Length (m):	75.00	Openness Ratio:		Constraints	no
Description of Constraints									
Access Logistics	park on roadside								
Fencing:	None								
Camera Options:	no								
Tracking Potential	no								
Species/Sign Observed:	none								

## DESCRIPTION OF VEGETATION M8-4

N or E Entrance	Veg. Thickness	open	Dominant Vegetation Type	shrubs		
Cover Classes at 20	Shrubs		Grass/Herbs		Trees:	
	Bare/Rock:		Native Species:		Exotic Species	
S or W Entranc	Veg. Thickness	open	Dominant Vegetation Typ	shrubs		
Cover Classes at 20	Shrubs		Grass/Herb		Trees:	
	Bare/Rock:		Native Species:		Exotic Species	
Veg. Comments:						

## THREATS AND MANAGEMENT RECOMMENDATIONS M8-4

Primary Threat:	at-grade crossing	Severity	3 (moderate)
Secondary Threat:	busy roadway	Severity	3 (moderate)
Mgmt Recommendations			
Comments:			
	Other priority		



# HMP Wildlife Movement Pinchpoint Description

## LOCATION DESCRIPTION

Corridor	M10	Point Code:	M10-1	Assessment Date	8/19/2013	Surveyors:	M. Spiegelberg		
Latitude:	33.06891500000		Longitude:	-117.26795600000		GPS Datum:	WGS		
Nearest River:	none								
Nearest Road	Under Leucadia Road		Road Conditions:	Divided roadway with two or more lanes each					
Structure Type:	arch culvert		Multi Chambers?	no		Structure Material	Metal		
Bottom Type:	sand								
Height(m):	2.80	Width (m)	8.40	Length (m):	38.00	Openness Ratio:	0.6	Constraints	No
Description of Constraints	wildlife undercrossing								
Access Logistics	Sand good for tracking								
Fencing:	Some 6 foot chain link along Barcelona								
Camera Options:	CNLM has camera at this location								
Tracking Potential	Yes								
Species/Sign Observed:	coyote, raccoon								

## DESCRIPTION OF VEGETATION M10-1

N or E Entrance	Veg. Thickness	moderately blocked	Dominant Vegetation Type	trees		
Cover Classes at 20	Shrubs		Grass/Herbs		Trees:	
	Bare/Rock:		Native Species:		Exotic Species	
S or W Entranc	Veg. Thickness	open	Dominant Vegetation Typ	shrubs		
Cover Classes at 20	Shrubs		Grass/Herb		Trees:	
	Bare/Rock:		Native Species:		Exotic Species	
Veg. Comments:	one willow partially blocking north side of tunnel					

## THREATS AND MANAGEMENT RECOMMENDATIONS M10-1

Primary Threat:	Vegetation blockage	Severity	3 (moderate/not imminen
Secondary Threat:		Severity	
Mgmt Recommendations	Clear veg on north side, add more fencing along Leucadia		
Comments:			
Upland crossing			

# HMP Wildlife Movement Pinchpoint Description

## LOCATION DESCRIPTION

Corridor	M11	Point Code:	M11-1	Assessment Date	8/19/2013	Surveyors:	M. Spiegelberg
Latitude:	33.06956000000	Longitude:	-117.26766100000	GPS Datum:	WGS		
Nearest River:	none						
Nearest Road	Under Barcelona Road	Road Conditions:	Divided roadway with two or more lanes each				
Structure Type:	arch culvert	Multi Chambers?	no	Structure Material	Metal		
Bottom Type:	sand						
Height(m):	2.90	Width (m)	5.80	Length (m):	45.00	Openness Ratio:	0.4
		Constraints	No				
Description of Constraints	wildlife undercrossing						
Access Logistics	Sandy and good for tracking. Good for camera						
Fencing:	Large wall fence on east side. Wall and 5'foot chain link on west side.						
Camera Options:	CNLM has camera at this location						
Tracking Potential	Yes						
Species/Sign Observed:	coyote, raccoon						

## DESCRIPTION OF VEGETATION M11-1

N or E Entrance	Veg. Thickness	moderately open	Dominant Vegetation Type	trees
Cover Classes at 20	Shrubs		Grass/Herbs	
	Trees:			
	Bare/Rock:		Native Species:	
	Exotic Species			
S or W Entranc	Veg. Thickness	moderately open	Dominant Vegetation Typ	shrubs
Cover Classes at 20	Shrubs		Grass/Herb	
	Trees:			
	Bare/Rock:		Native Species:	
	Exotic Species			
Veg. Comments:	sparse vegetation at west opening; moderately dense vegetation at east opening			

## THREATS AND MANAGEMENT RECOMMENDATIONS M11-1

Primary Threat:	Veg blocking openings	Severity	3 (moderate/not imminen
Secondary Threat:		Severity	
Mgmt Recommendations	Thin veg on east side.		
Comments:			
	upland crossing		



# HMP Wildlife Movement Pinchpoint Description

## LOCATION DESCRIPTION

Corridor		Point Code:	PF	Assessment Date	7/6/1905	Surveyors:	M. Grim
Latitude:		Longitude:		GPS Datum:			
Nearest River:							
Nearest Road		Road Conditions:					
Structure Type:	box culvert	Multi Chambers?	no	Structure Material	concrete		
Bottom Type:	dirt						
Height(m):	1.80	Width (m)	3.00	Length (m):	21.10	Openness Ratio:	0.3
Constraints							
Description of Constraints							
Access Logistics							
Fencing:							
Camera Options:							
Tracking Potential							
Species/Sign Observed:							

## DESCRIPTION OF VEGETATION PF

N or E Entrance	Veg. Thickness		Dominant Vegetation Type			
Cover Classes at 20	Shrubs		Grass/Herbs		Trees:	
	Bare/Rock:		Native Species:		Exotic Species	
S or W Entranc	Veg. Thickness		Dominant Vegetation Typ			
Cover Classes at 20	Shrubs		Grass/Herb		Trees:	
	Bare/Rock:		Native Species:		Exotic Species	
Veg. Comments:						

## THREATS AND MANAGEMENT RECOMMENDATIONS PF

Primary Threat:		Severity	
Secondary Threat:		Severity	
Mgmt Recommendations			
Comments:			