

**San Diego Association of Governments**  
**Vernal Pool Restoration**  
**Final Report**  
**Project Period: February 15, 2017 to August 15, 2018**  
**SANDAG Contract Number: 5004945**

## **Executive Summary**

The vernal pools at the Spring Canyon/Goat Mesa complex (J16-18) and surrounding open space have suffered considerable off-road damage over the years, resulting in changes in hydrologic, flow patterns, and inundation characteristics. The Spring Canyon/Goat Mesa vernal pools complex (J16-18) and surrounding area supports habitat for several endangered and threatened species covered by the Management and Monitoring Strategic Plan for Conserved Lands in Western San Diego County (MSP) (SDMMP and The Nature Conservancy 2017).

The primary goal of this project was to reduce illegal trespass and impacts from illegal off-road vehicle use to protect the habitat for the rare, endangered and threatened species that exist onsite. To reach this goal, the City of San Diego (City) used the awarded funding to fence off key access points and areas of frequent off-road vehicle use throughout the City open space. Over 6,700 feet of fencing was installed across the project area.

Patrols and visual surveys showed that illegal off-road use was reduced by 75% as the evidence of off-road use dropped significantly following fence installation. Three wildlife cameras were setup in areas that had new fence installed to remotely photograph of any movement that occurred. Only one instance of illegal off-roading was caught on camera where the off-roaders accessed the site through an open gate. The problem was immediately remedied by locking the gate.

Natural revegetation of road scars was minimal during the grant period due to a lack of sufficient precipitation; however, it is expected that the installed fencing will prevent further damage in these areas and allow the off-road scars to naturally recover over time.

Looking forward, consistent patrols are needed to check for fence damage and to make repairs. As the Otay Mesa area continues to be developed, pressures from the surrounding community will continue to impact this fragile ecosystem. Having the fence in place before the major development occurs will help to deter people from participating in illegal off-roading activities and causing further damage to the vernal pools and surrounding sensitive habitats.

## Contents

Executive Summary	1
Project Background	3
Project Goals	3
Work Performed by Task	4
Task 1- Fence installation	4
Task 2- Fence maintenance	4
Task 3- Off-road Vehicle pre-installation monitoring	4
Task 4- Off-road Vehicle post-installation monitoring	5
Conclusions:	8
References:	8
Attachments:	8

## Project Background

The vernal pools at the Spring Canyon/Goat Mesa complex (J16-18) and surrounding open space have suffered considerable off-road damage over the years. This damage has resulted in changes in hydrologic, flow patterns, and inundation characteristics. The Spring Canyon/Goat Mesa vernal pools complex (J16-18) were identified by the adopted *Recovery Plan for Vernal Pools of Southern California* (USFWS 1998) as necessary to stabilize populations of the following endangered and threatened MSP species: San Diego button celery (*Eryngium aristulatum* var. *parishii*), Otay mesa mint (*Pogogyne nudiuscula*), Spreading navarretia (*Navarretia fossalis*), California orcutt grass (*Orcuttia californica*), San Diego fairy shrimp (*Branchinecta sandiegonensis*), and Riverside fairy shrimp (*Streptocephalus woottoni*). The Management Strategic Plan (MSP) for Conserved Lands in Western San Diego County (SDMMP) also lists other MSP covered species historically found onsite including Variegated dudleya (*Dudleya variagata*), Little mouse tail (*Myosurus minimus*), Western Spadefoot (*Spea hammondi*), and burrowing owl (*Athene cunicularia*).

The City of San Diego, Parks and Recreation Open Space Division, Open Space Canyons section has a full time Senior Park Ranger and two full time Park Rangers with 35 years of combined natural resource management experience. These three Rangers manage and patrol over 3,500 acres of open space areas throughout the entire City of San Diego geographical boundaries including Otay Mesa Open Space that encompasses Spring Canyon and Goat Mesa. The Park Ranger staff will coordinate with the fence contractor to implement the project. The Open Space Division also has two full time Biologists with 25 years of combined biological monitoring experience who will evaluate the results.

## Project Goals

The primary goal of this project was to protect the habitat for rare, endangered and threatened species by fencing off the key access points and areas of frequent off-road vehicle use throughout the City open space to minimize trespass and impacts from illegal off-road vehicle use. The objectives and expected results of the project were:

- Within six to 12 months of fence installation illegal trespass and off-road vehicle activity would be reduced by 75%. This was quantified through regular patrols of the area and by using wildlife cameras to document off-road vehicle activity.
- Populations of endangered and threatened species would not be threatened by illegal off-road vehicle activity.
- The surrounding open space land would begin to naturally heal and scars from illegal off-road trails will start to gradually fade. This was documented by establishing five photo points of illegal off-road trails and taking photos of them every 4-6 months to visually determine the changes.

## Work Performed by Task

### **Task 1- Fence installation**

*Budget: \$48,000 (from grant agreement)*

*Spent: \$47,977*

#### ***April 1, 2017 – June 30, 2017***

Contractor supplied and installed 5,650 feet of four-foot tall three strand wire fence at locations indicated on map. Actual fence install cost came in under the proposed budget amount; therefore, additional fence installation was planned for fall 2017.



**Photos 1 and 2:** Fence of being installed along edge of access trail. Wire had not been put on yet. Date taken: 6/6/17.

#### ***October 1, 2017 – December 31, 2017***

Contractor supplied and installed 1,088 additional feet of four-foot tall three strand wire fence and a 12' x 42" swing gate at critical Southern entrance location (see photo 10 below).

#### ***April 1, 2018 – June 30, 2018***

City staff purchased supplies and installed section of t-post and wire fence at Photo Point 9. Before and after photos area included in Attachment B.

### **Task 2- Fence Maintenance**

*Budget: \$2,000 (from grant agreement)*

*Spent: \$2,000*

#### ***October 1, 2017 – December 31, 2017***

Maintenance was performed to adjoin existing fence section and existing regulations signs to new fence section.



### **Task 3- Off-road vehicle pre-installation Monitoring**

*Budget: \$0 (from grant agreement)*

***April 1, 2017 – June 30, 2017***

City Park Ranger staff monitored and documented site pre-installation for off-road vehicle activity to identify problem areas where fencing was needed.

### **Task 4- Off-road vehicle post-installation Monitoring**

*Budget: \$0 (from grant agreement)*

Six photo point locations were setup on 6/6/17 to monitor off-road vehicle activity post-installation of the fence. An additional photo point location was setup on 8/24/17 and another two were setup 9/18/17 to monitor off-road activity in locations that had previous or new off-road activity. Photographs taken at the photo point locations are included in Attachment B.

Three wildlife cameras were installed near access points to City open space land to monitor off-road activity near newly installed fences on 3/19/18. These access points were chosen because they are the main drivable routes entering from the South and West used by City staff and Border Patrol to patrol and monitor the open space.



**Photos 3 through 5:** Wildlife cameras were installed to remotely monitor off-road activity near newly installed fences on 3/19/18.



**Photo 6:** A wildlife camera documented illegal off-road access through new gate that had been left unlocked to allow Border Patrol access on existing dirt road for patrols. The newly installed gate is just off camera to the right of motorcycle on the right of the picture.



**Photo 7 through 9:** City staff followed tracks from the illegal off-road access that was caught on the wildlife cameras on 5/25/18, and discovered damage shown in the photos above.





**Photo 10:** Lock and chain were added to new gate (middle left of picture) to prevent further illegal off-road access for this entrance into City land. Border Patrol added their own lock to access area for patrols.



**Photo 11 through 14:** Wildlife cameras documented authorized vehicles (i.e. Border Patrol, USGS researchers, City of San Diego Ranger Staff, and City of San Diego Biologist staff) utilizing the access road.

## Conclusions

The installation of over 6,700 feet of wire fence and t-post has greatly reduced off-road activity in the Otay Mesa Open Space by keeping authorized vehicles on approved access paths and discouraging unauthorized vehicles from entering the area. It has created layers of fencing that keep off-road activity away from the vernal pool complexes and sensitive species in them. Only one incidence of illegal off-road activity was documented during the grant period. This incident was immediately addressed by adding a lock and chain to the gate through which the trespassers entered. As such, the project was successful in reducing off-road by more than 75%; thereby, reducing the compaction of soils and slowing the progress of unauthorized trails being created in sensitive habitats.

Considering the successful reduction in illegal activity within the Otay Mesa Open Space, nothing could have been done differently to improve the project outcome. The results of reducing off-road activity in the area have contributed to the conservation of sensitive vernal pool habitat and several MSP species.

Photographic monitoring showed that natural revegetation of roads scars was minimal during the grant period. This is likely due to a lack of sufficient precipitation in the winter of 2017-2018. While recovery may be slow, it is expected that the installed fencing will prevent further damage in these areas and allow the off-road scars to naturally heal over time.

Looking forward, consistent patrols are needed to help identify future problems early and allow them to be taken care of quickly. As the Otay Mesa area continues to be developed, adaptive management of the area will be crucial to stay ahead of the stressors that will continue to affect the health of the Otay Mesa open space and surrounding region. The City of San Diego has been awarded a grant that will build upon these efforts the protect Otay Mesa's sensitive species by removing the dead biomass and brush, installing erosion control BMPs, planting 500 native plants and creating weed buffers around the vernal pools.

## References:

San Diego Management and Monitoring Program (SDMMP) and The Nature Conservancy *Management and Monitoring Strategic Plan for Conserved Lands in Western San Diego County: A Strategic Habitat Conservation Roadmap*. 2017.

United States Fish and Wildlife Service (USFWS). *Vernal Pools of Southern California Recovery Plan*. September 1998.

## Attachments:

Attachment A - Spring Canyon/Goat Mesa Installed Fence Locations Map

Attachment B - Photographic Documentation

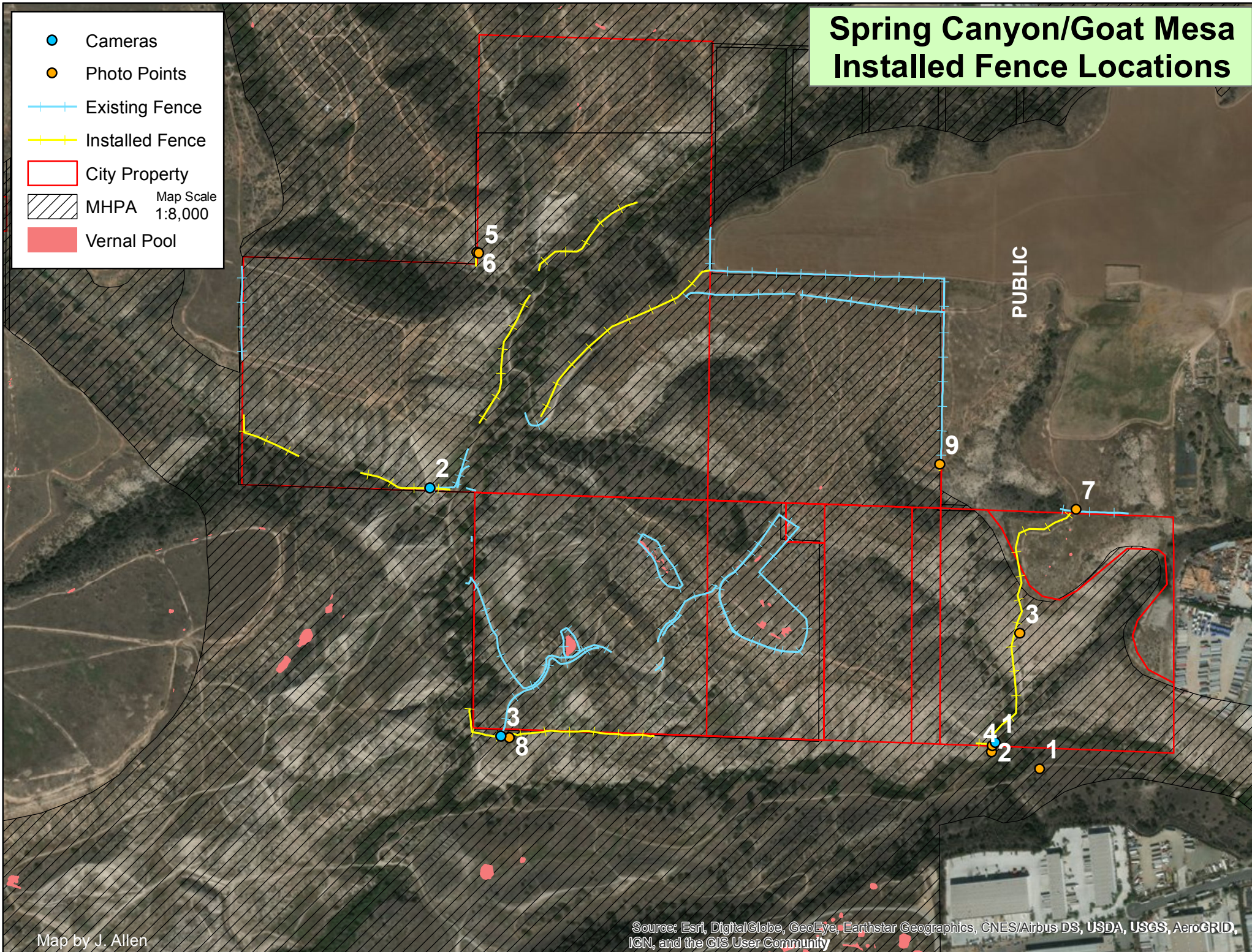
## **Attachment A**

### **Spring Canyon/Goat Mesa Installed Fence Locations Map**



# Spring Canyon/Goat Mesa Installed Fence Locations

- Cameras
  - Photo Points
  - Existing Fence
  - Installed Fence
  - City Property
  - MHPA
  - Vernal Pool
- Map Scale  
1:8,000





## Attachment B - Photographic Documentation

**Photo Point 1:** Photo point established on 6/6/17. No new off-road vehicle activity discovered in this photo point area during grant period.





**Photo Point 1 continued:**

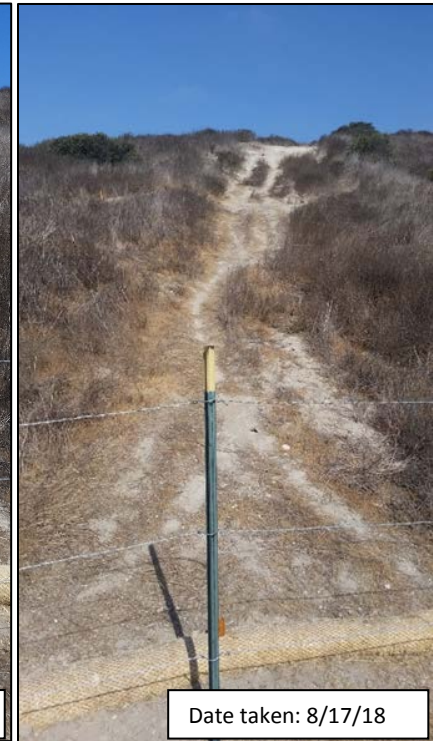
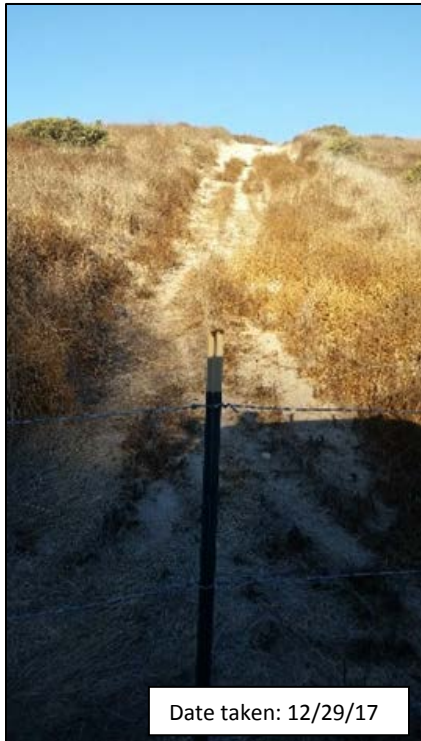




**Photo Point 2:** Photo point established on 6/6/17. No new off-road vehicle activity discovered in this photo point area during grant period.

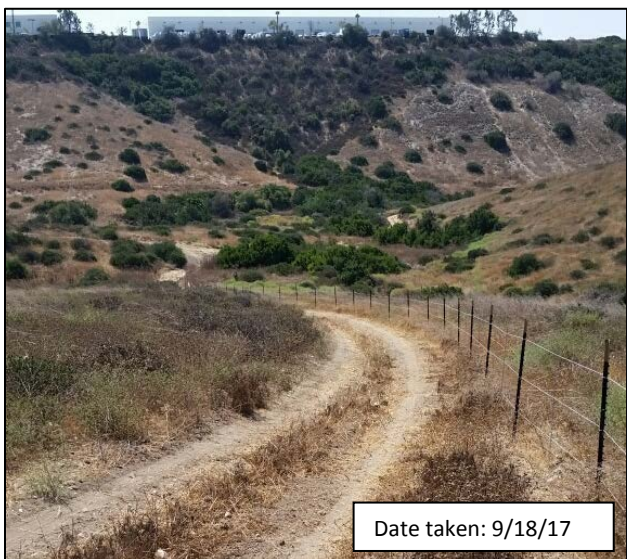


**Photo Point 2 continued:**



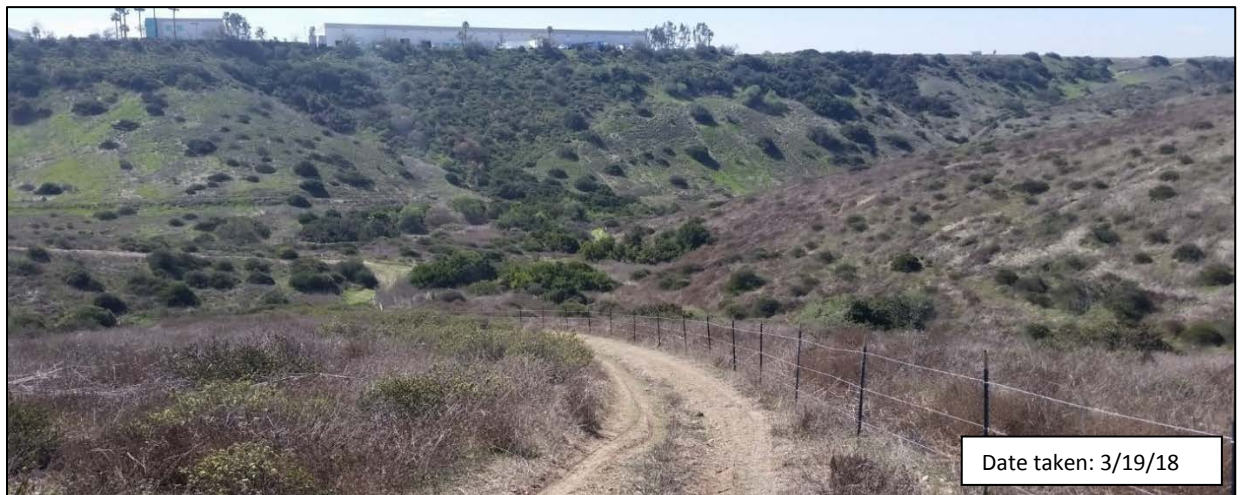


**Photo Point 3:** Photo point established on 6/6/17. No new off-road vehicle activity discovered in this photo point area during grant period.





**Photo Point 3 continued:**

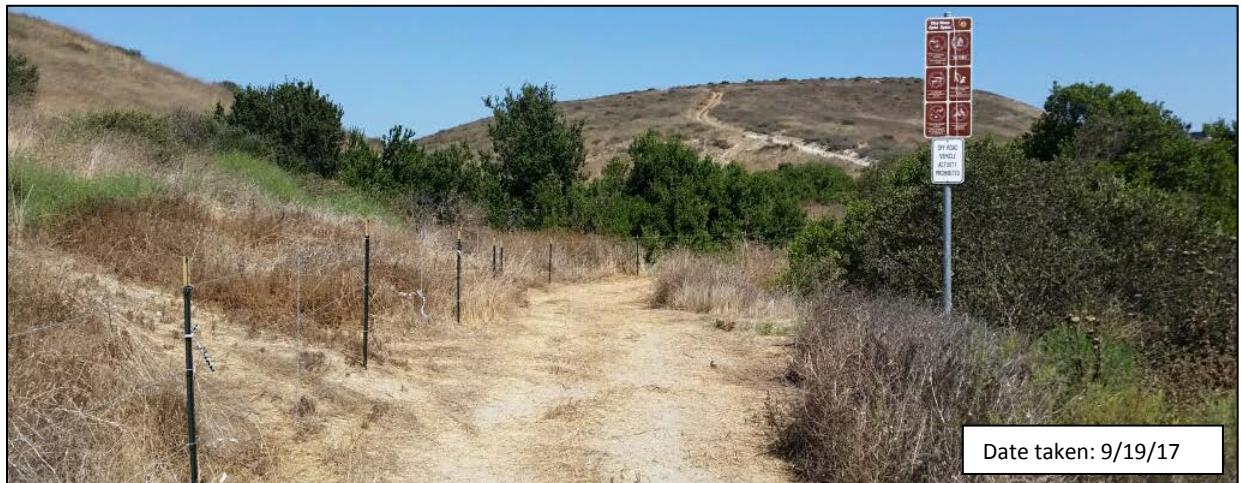


**Photo Point 3 continued:**





**Photo Point 4:** Photo point established on 6/6/17. No new off-road vehicle activity discovered in this photo point area during grant period.





**Photo Point 4 continued:**

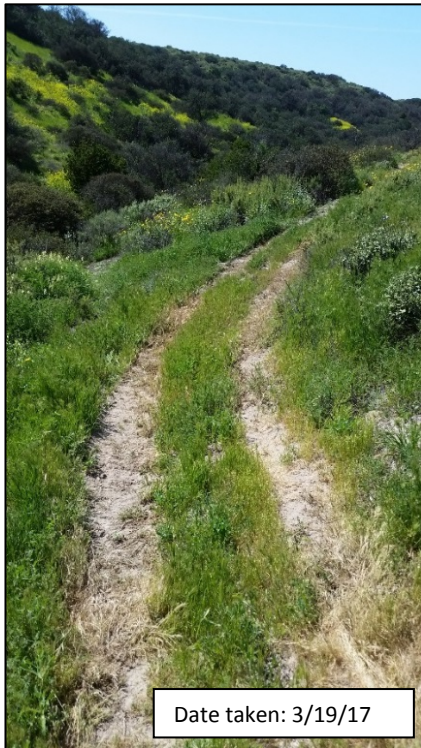


**Photo Point 4 continued:**





**Photo Point 5:** Photo point established on 3/19/17. No new off-road vehicle activity discovered in this photo point area during grant period.





**Photo Point 5 continued:**





**Photo Point 6:** Photo point established on 3/19/17. No new off-road vehicle activity discovered in this photo point area during grant period.





**Photo Point 6 continued:**





**Photo Point 6 continued:**



**Photo Point 7:** Photo point established on 8/24/17. Identified new off-road vehicle activity on 8/24/17 leading from outside to inside of City of San Diego Open Space property. Placed rocks across scar to deter further use. No new off-road vehicle activity was discovered in this photo point area following rock placement.





**Photo Point 7 continued:**





**Photo Point 8:** Photo point established on 9/18/17. Identified new off-road vehicle activity on 9/18/17 outside of City of San Diego Open Space property, but near borderline of property. Additional fencing was installed in November 2017 just north of this location on City property. No new off-road vehicle activity discovered in this photo point area following the installation of additional fencing.





**Photo Point 8 continued:**





**Photo Point 9:** Photo point established on 9/18/17. Identified dated off-road vehicle activity on 9/18/17 leading from outside to inside of City of San Diego Open Space property. Location for additional fencing was installed by City staff on 5/25/18 and 5/30/18 to extend the fence line. No new off-road vehicle activity discovered in this photo point area during the grant period.





**Photo Point 9 continued:**

