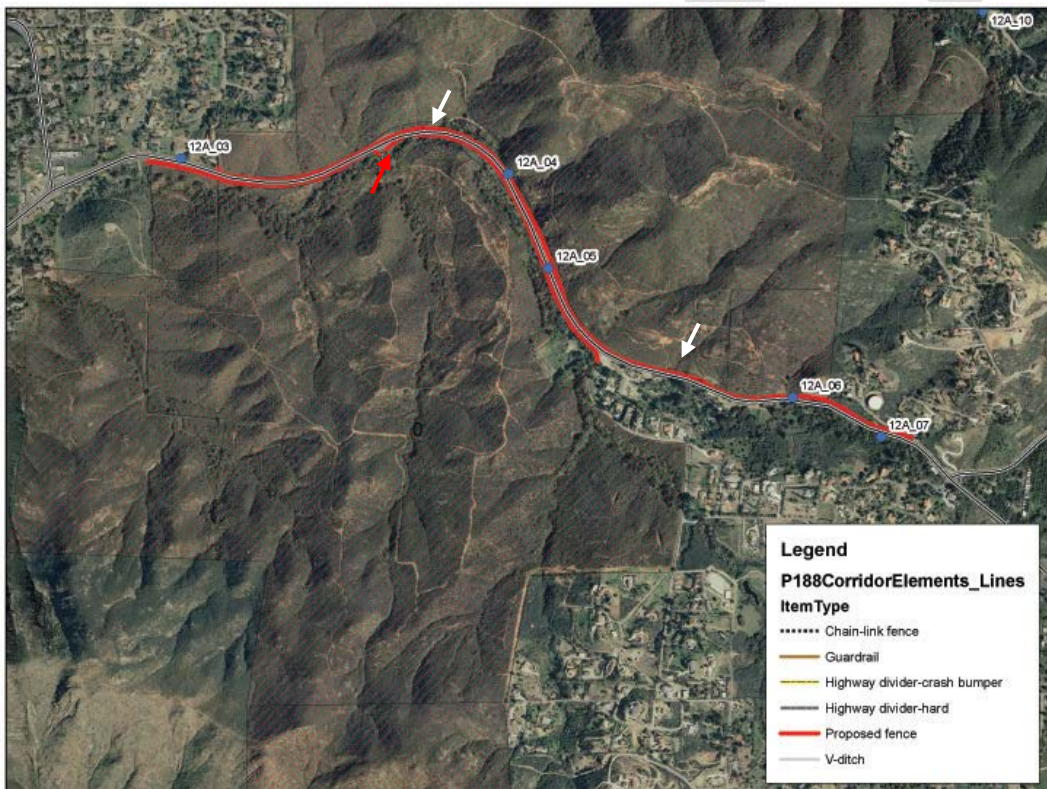




Preliminary Actions to Improve the Function of Wildlife Linkages within the San Diego County Preserve System.



Data Summary

Prepared for:

San Diego Association of Governments

U.S. DEPARTMENT OF THE INTERIOR
U.S. GEOLOGICAL SURVEY
WESTERN ECOLOGICAL RESEARCH CENTER

Preliminary Actions to Improve the Function of Wildlife Linkages within the San Diego County Preserve System.

By: Carlton J. Rochester¹ and Robert N. Fisher¹

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¹San Diego Field Station – San Diego Office
USGS Western Ecological Research Center
4165 Spruance Road, Suite 200
San Diego, CA 92101

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U.S. DEPARTMENT OF THE INTERIOR
Sally Jewell, SECRETARY

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Suzette Kimball, Acting Director

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For additional information, contact:

Center Director
U.S. Geological Survey
Western Ecological Research Center
3020 State University Drive East
Modoc Hall, Room 3006
Sacramento, CA 95819

Introduction

In support of the MSCP Connectivity Strategic Plan, the U.S. Geological Survey performed a preliminary assessment of the potential linkages between the core conserved wildlife areas within San Diego County. In coordination with the San Diego Management and Monitoring Program (SDMMP), ten of the possible linkages were identified as priority areas and evaluated for the likelihood that focal wildlife species would be able to move from one core area to the next. Based on these efforts, there are several early actions that can be taken to protect wildlife and promote connectivity across the preserve.

Many of the recommendations here involve fencing to guide wildlife away from roadways and towards appropriate crossing structures where they exist. Due to the wide ranging characteristics of the intended focal species, fencing should include design elements to exclude both large and small animals from the roadway, while still allowing continued vehicle and pedestrian access. And, where possible, fencing should incorporate some level of fire ignition reduction technique. Fence design may include a Jersey rail with chain-link fence above. The Jersey rail along the lower edge would prevent small wildlife from entering the roadway. And the fencing along the upper portion should deter larger animals. Additionally, the Jersey rail should intercept sparks from passing cars and potentially blowing embers, reducing the number of ignitions along the roadside. An alternate fence design may include a chain-link fence with 36 inches of metal flashing along the lower edge, with six inches of both buried below the surface. Neither of these fencing designs has been confirmed to reduce ignitions along roadsides, further research into the practicality of fences as barriers to fire is needed. Surface drainage from the roadway should include structural elements that would reduce the likelihood that wildlife could access the road through drainage structures.



Vehicle and pedestrian access across the wildlife fencing can be accomplished with cattle grates and self closing gates where needed. Where driveways join the main road, cattle grates should be installed to deter wildlife from going around the end of the fence onto the road. Visual and real cattle grates should be considered and evaluated for effectiveness, but the expectation is that real cattle grates should be more effective across the range of animals sizes the fences are intended to protect. Where real cattle grates are used, the design should include a mechanism to return any animal that falls into the grate to the correct side of the fence. The pedestrian gates should include steps on the road side of the fence to go over the height of the metal flashing while maintaining the flashing as a barrier on the wildlife side of the fence.

Fencing animals out of the roadway is only part of the solution, if done incorrectly it can actually become part of the problem. In addition to fences, the ideal situation would be to install species appropriate structures also to allow wildlife to cross the roads. This

process may require a more extensive effort than would be considered “a preliminary action” and are only briefly touched upon here.

In addition to fencing, several properties have been identified for future purchase to ensure the long term connectivity of the preserve. Between two of the core areas, parcels of open land have been identified for possible acquisition. These lands may already be serving to connect the core areas, but they should be purchased or managed to provide a continued linkage.

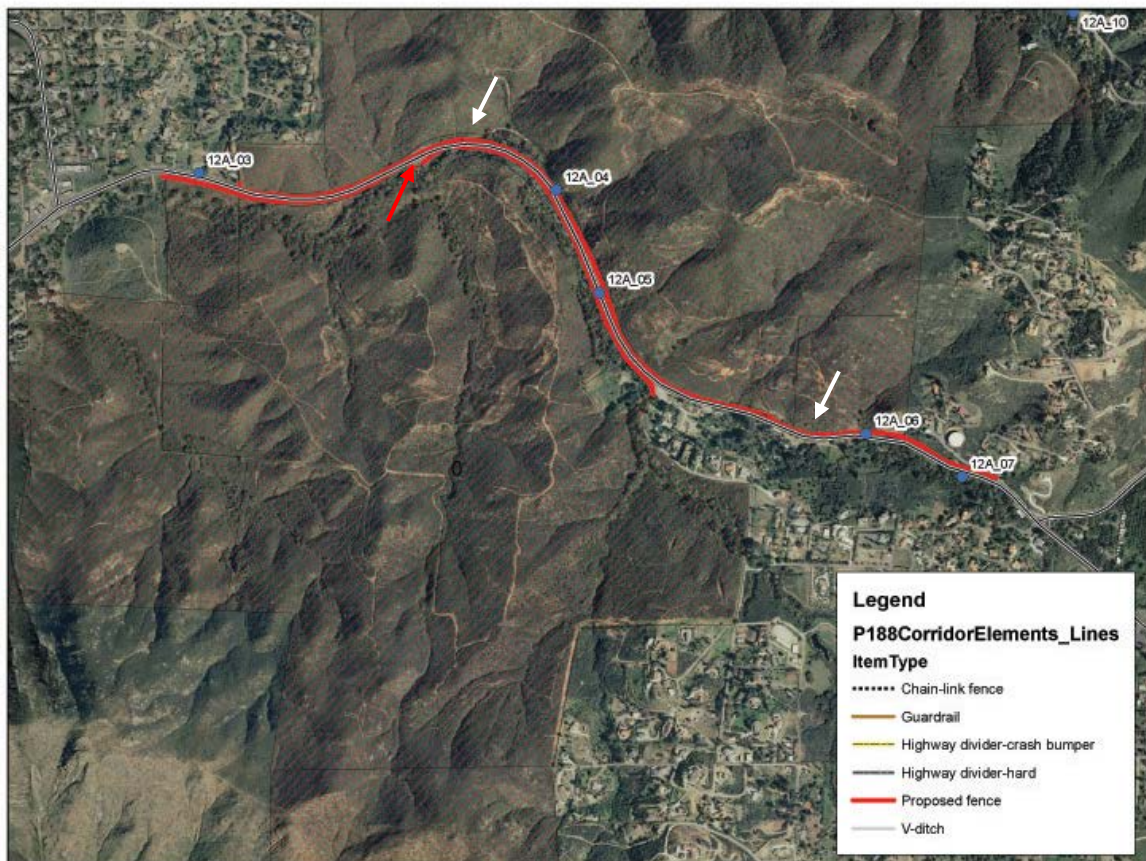
The data used to evaluate the conserved lands of San Diego County need to be verified and updated. Some lands currently listed as conserved may have no biological value and perhaps should be removed from the system. Other lands that are already publicly owned have not been labeled as protected or conserved. Knowing the correct status of the properties within the preserve will result in a clearer picture of what is and is not functioning as wildlife corridors.

The actions and improvements presented here are solely intended as preliminary efforts to protect wildlife and conserved lands and to promote connectivity between the core conserved lands in San Diego County. In most cases, large scale retrofitting of the infrastructure will be needed to promote the long-term connectivity of the landscape. Long-term projects would need to consider changes in land-use policies, road re-alignments, and habitat restoration planning. In portions of San Diego, structures suitable for wildlife movement have been built, but they are surrounded by highly disturbed habitat that is unlikely to support the targeted wildlife. Efforts to restore the native vegetation in these areas would increase the value of the structures to the overall connectivity within the reserve. The degradation of these habitats didn't happen overnight and any restoration effort probably take just as long to show signs of progress. Many of the major roads in the region were not built with any wildlife considerations in mind, SR-94, SR-67, I-8, and I-15 are extremely detrimental to wildlife movement even where there is suitable habitat on both sides of the roadway. Tunnels, culverts and overpasses will need to be engineered and installed along these major arteries to allow the safe passage of wildlife from one side to the other. In many of the areas in the county that would function as natural corridors, human interests have completely clogged the system, blocking natural movement routes. River channels are built into golf courses and shopping centers, leaving few paths between protected lands. The suggestions outlined here will not solve the connectivity issues within the reserve, but should serve as a starting point until the larger problems can be identified and addressed.

Recommendations

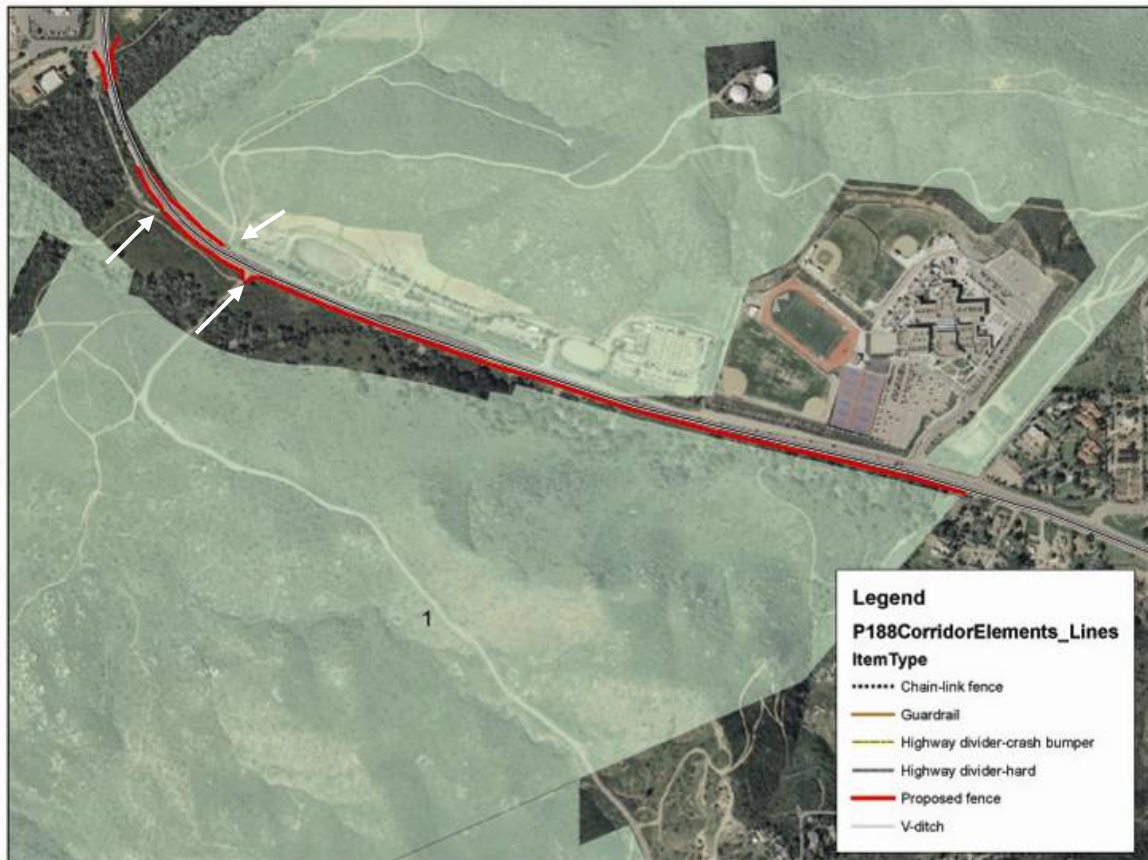
Linkage 1 – 2A East End

Improvements can be made in the area of Rancho Jamul to increase the success of the linkage between Core Area 1 and 2. On SR-94, near the U.S. Fish and Wildlife Services' Las Montañas property, fencing should be installed along both sides of the roadway to reduce the likelihood of wildlife – automobile interactions and to funnel animal movements towards any existing culverts and tunnels. The red arrow shows where the fencing will need to be tied into the water station. The white arrows indicate access points along SR-94 that will need cattle grates to prevent wildlife from entering the road at driveways. The vegetation at both ends of culvert 12A_04 needs to be cleared to increase the usefulness of this passage.



Linkage 1 – 2A West End

Along SR-94, near the U.S. Fish and Wildlife Services' National Wildlife Refuge – Steele Bridge site, wildlife exclusion fencing needs to be installed to prevent wildlife access to the road way. Any wildlife movement along this portion of SR-94 will have to occur at the Sweetwater Bridge. The white arrows indicate access points along SR-94 that will need cattle grates to prevent wildlife from entering the road at driveways. Barbed wire fencing exists along portions of this road, but something more substantial is needed. The County owned property on the north side of SR-94 with the horse ranch should be re-evaluated to determine if it should continue to be identified as part of the core conserved area.



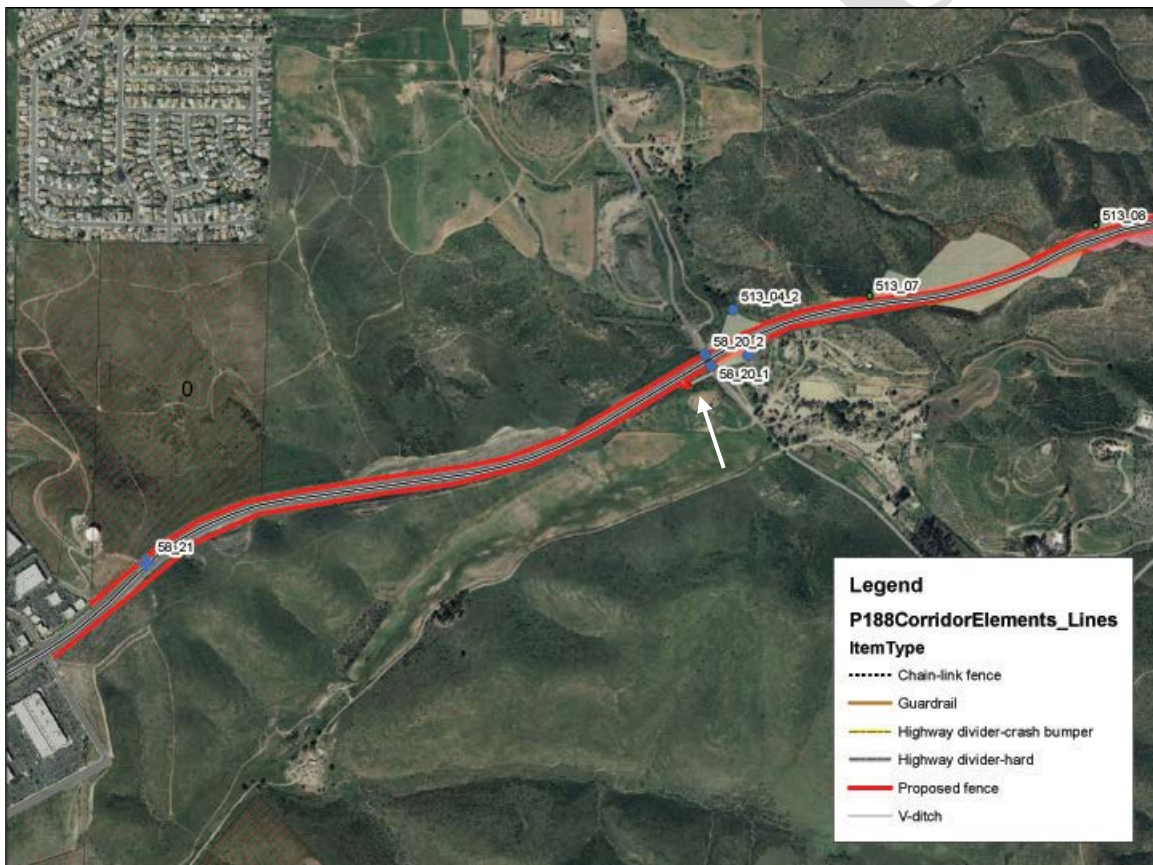
Linkage 1 – 2A Mexican Canyon

Jamul Drive near Mexican Canyon already has some fencing on both sides of the road, but this needs to be extended and upgraded to prevent wildlife – automobile interactions in the area. The white arrows indicate access points along SR-94 that will need cattle grates to prevent wildlife from entering the road at driveways. The double box culvert at 12A_08 will need to have the vegetation at both ends thinned. Within the culvert, the sediment depth should be evaluated and cleared out if it is excessively deep.



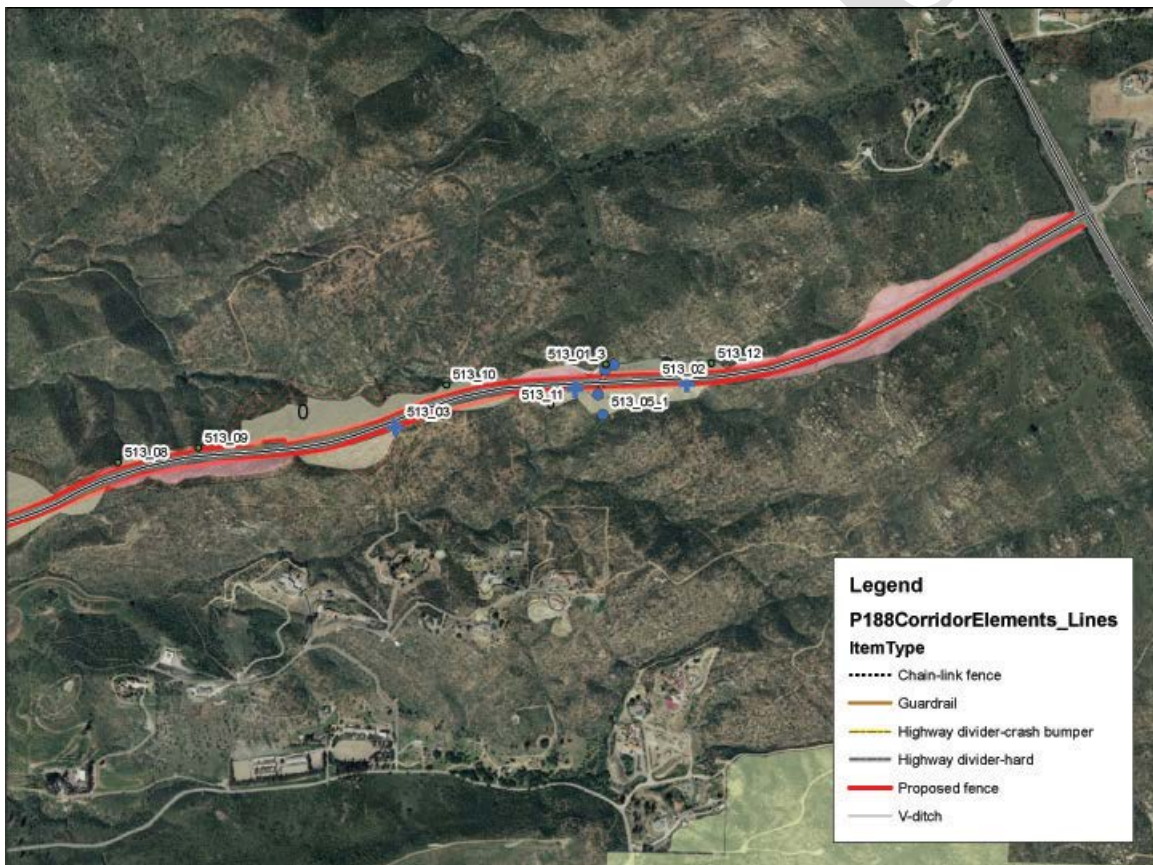
Linkage 5 -13 West End

Scripps-Poway Parkway should have wildlife exclusion fencing along most of the length of the road east of the Poway industrial / commercial area. The white arrow indicates where an access road connects to Scripps – Poway Parkway from Sycamore Canyon Road that will require a cattle grate.



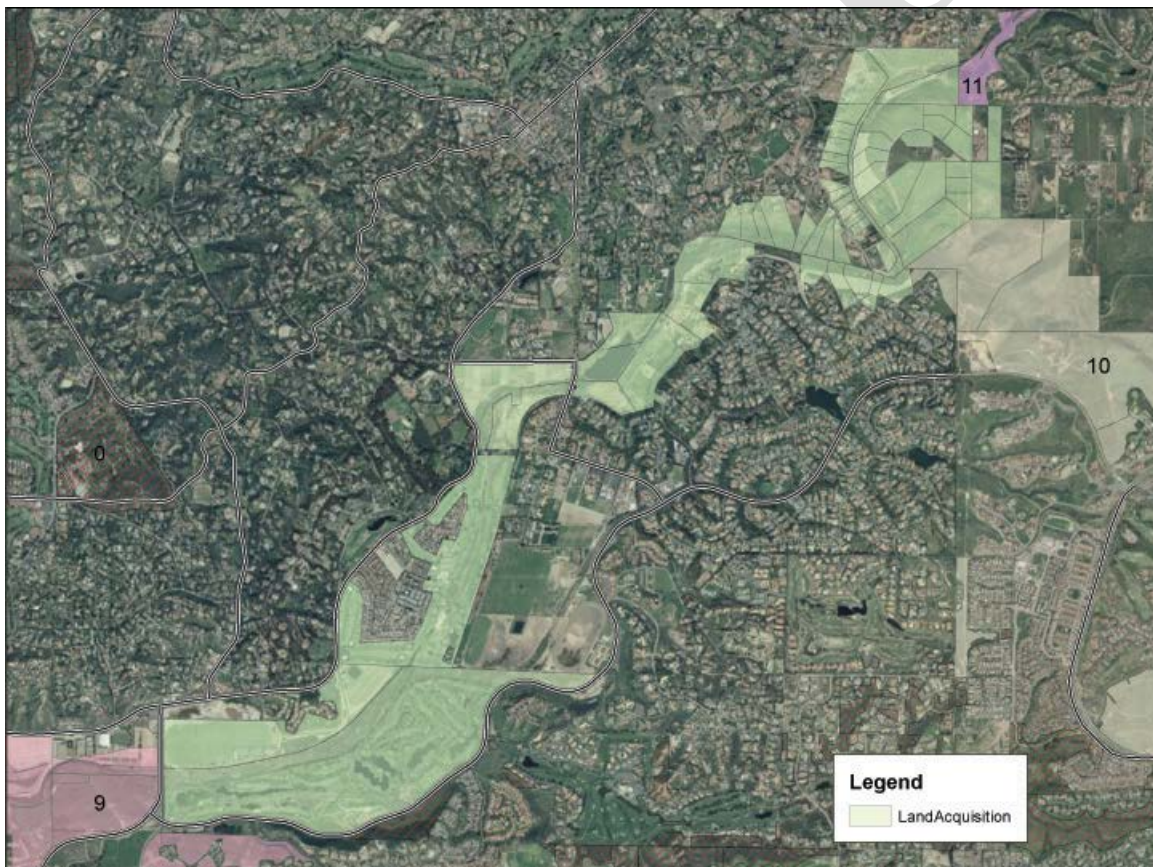
Linkage 5 – 13 East End

The east end of Scripps – Poway Parkway near the wildlife tunnel needs to have additional fencing. The purpose built wildlife tunnel at 513_01 has some fencing, but it is insufficient to prevent wildlife movement onto the road way. The fencing along Scripps – Poway Parkway should extend well beyond the immediate vicinity of the tunnel to ensure that wildlife are guided away from the road and through the tunnel. Fencing in the area of the tunnel will also require accommodations for human use, such as horse back riders and hikers, but should include self closing gates where possible. Just east of the tunnel, there is space to install a deer jump out ramp on the south side of the road to allow wildlife to escape the road if needed. The north side of the road should also be evaluated for an appropriate location for a deer jump out ramp. SR-67 in the upper right of the image will also require more substantial fencing eventually.



Linkage 9 – 10 and Linkage 10 – 11 Land Acquisition

To secure and improve the connectivity between Core Area 9, Core Area 10, and Core Area 11, lands along the San Dieguito River should be acquired or managed for wildlife. The connectivity between CA-10 and CA-11 in this area may be functioning, but the lands are not in conservation. While many of the properties in this area have homes on them, they have large backyards that may be useable. The connection between CA-9 and CA-10 is more complicated, there are several golf courses along the river channel that may impede movement. But there is potential that management policies within the golf courses will provide enough vegetative cover to allow movement along this corridor. The golf course at the lower left of the figure is identified as being owned by the City of San Diego, but it has no identified conservation status.



Linkage 10 – 11

The linkage between Core Area 10 and Core Area 11 through the chain of non-core conserved lands is most likely non-functional for any species except the most commensal, disturbance tolerant species. The section of Rancho Bernardo Road just south of CA-11 at the east end should be fenced to prevent wildlife access to the roadway. There is no significant wildlife crossing structure at this location to guide wildlife towards, the fence would solely be to keep animals away from the road.



Linkage 2 – 3B

Based on the current situation with feral pigs in San Diego County, it may be beneficial to reduce connectivity between Core Area 2 and Core Area 3 at Peutz Valley Road. At Peutz Valley Road, where it crosses under Interstate 8, a survey needs to be done to determine if the feral pigs north of I-8 are moving through this corridor into the lands to the south. If the pigs are using this route, crossing either at grade along the road surface or through the underground tunnel, temporary modifications may be required to reduce the chance of pigs moving south. At the road surface, there may be the possibility that this can be done with the installation of a cattle grate. Blocking the underground culvert to pigs but still allowing water to flow may require the building of a waterfall type barrier that is impassible to the pigs.

Linkage 5 – 8

The culvert crossing diagonally under the intersection of Scripps-Poway Road and Pomerado Road is most likely non-functional, but should be evaluated based on field data that may be available through the research efforts of the San Diego Tracking Team or M. Jennings. The south-east end of the culvert is choked with vegetation and may need clearing if it seems that wildlife is getting to this point and then being forced to turn around. At the time that this site was visited, all of the tunnels had flowing water. If there are signs that this may be functional, adding an elevated, dry walkway through the length of the culvert would allow animals a dry route to pass through the tunnel.

The bridge that carries Black Mountain Road over Los Peñasquitos Canyon needs additional fencing. The southeast side of the bridge has approximately 50 feet of chain link fence between the sidewalk and the vegetation, going all the way to the structure. The other three corners of the bridge have no fencing to prevent movement from the vegetated areas onto the roadway. Any fencing in this area will need to include accommodations for human recreational use.

Linkage 8 – 10

The Camino Ruiz bridge over McGonigle Canyon provides ample space for wildlife movement but has very limited vegetative cover.

Carmel Valley Road over McGonigle Canyon needs additional fencing and gates to properly separate the wildland areas from the roadway.

GIS, Conservation Designation, and Land Management Plans

Our understanding of the linkages within the reserve system would be improved by a thorough review of the available information. There are many properties that are identified as conserved that may hold little to no value to wildlife. These should be evaluated and a decision made as to whether or not we continue to include these in the reserve design. There are also many properties that are publicly held lands with “Open space park or preserve” status that are not included in the Conserved Lands files. Including these properties will help evaluate what is protected and what isn’t. San Pasqual Valley is an example. There are many properties held by the City of San Diego or the County of San Diego (outlined in red in the map) where the land use is categorized as open space. If these lands can be identified and managed as conserved lands, the linkage between Core Area 11 and Core Area 12 would appear more robust and easily identifiable.

