Wildlife Use of the Los Piñetos Underpass in Santa Clarita, California

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INTRODUCTION

Habitat connectivity and corridors are critical to the maintenance of populations of wide-ranging, terrestrial species of mammals. In northern Los Angeles County, California, a wedge of land formed by two major highways, Interstate 5 and State Route (SR) 14, separates mountain ranges that contain regionally significant blocks of protected habitat. On SR-14, the Los Piñetos underpass provides a connection between Mountains Recreation and Conservation Authority (MRCA) and City of Santa Clarita protected lands and is within the NPS Rim of the Valley Corridor Special Resource Study Area. Thus the underpass has an important position for regional connectivity, but proposed development may threaten its viability as a corridor. To document wildlife use of this underpass for the first time and prior to possible development, we installed remotely triggered cameras in the underpass, near the underpass, and up to 1 km away from the structure.

RESEARCH QUESTIONS

1. What animals are using the underpass compared to animals using the surrounding landscape?
2. Is there a difference in the activity patterns of wildlife versus people?

Figure 1a. Map reproduced from Penrod et al. (2006) showing 15 important landscape linkages. Arrow indicates the Los Piñetos underpass between San Gabriel and Santa Susana Mountains, in an area of several key linkages.

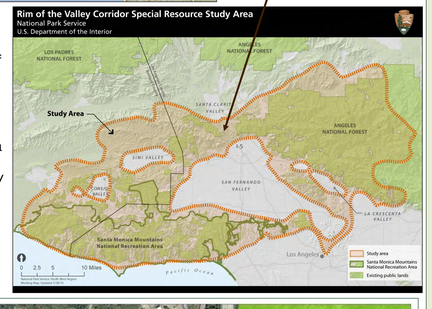

Figure 1b. Arrow indicates location of the Los Piñetos underpass within Rim of the Valley Corridor Special Resource Study Area (2010 map figure; *www.nps.gov/pwro/rimofthevalley*).

Figure 2. Protected lands (green) and area of proposed development surrounding the Los Piñetos underpass (red circle). Base map courtesy of MRCA.

METHODS

Figure 3. Los Piñetos underpass under SR-14, 1.2 miles east of Interstate 5 in Santa Clarita, California.

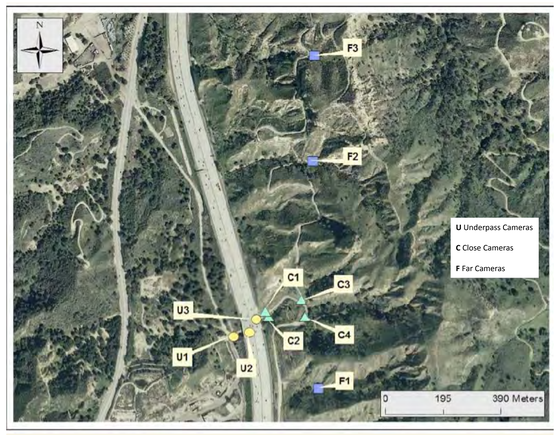

Figure 4. Location of the ten remotely triggered cameras at and around the Los Piñetos underpass.

Figure 5. Photograph of camera installation.

Figure 6. Photograph of completed camera installation.

We installed 10 Cuddeback Expert Digital Scouting Cameras in 3 stages. Stage 1 included 4 cameras immediately east of the underpass (**C1-C4**) to determine what animals were present close to the underpass and their direction of travel. Stage 2 consisted of 3 cameras further from the underpass that were at least 20 m from the road (**F1-F3**) to get a baseline of animal activity away from humans. Stage 3 included 2 cameras in the underpass to detect wildlife use of the underpass and a 3rd to observe directionality after animals exited on the side of the proposed development site (**U1-U3**); these cameras were installed later due to a permit delay. We placed square metal posts 2 ft into the ground and mounted cameras on the posts 18 in above the ground. We collected data in weekly field visits and used CameraBase 1.4 to organize and analyze pictures by location and species. To control for a skewed representation of human activity, we created a method to account for repetitive pictures. We disregarded human activity at a single camera that occurred within 10 min of previous human activity, to allow for a more accurate comparison of anthropogenic activity to wildlife in the area.

RESULTS

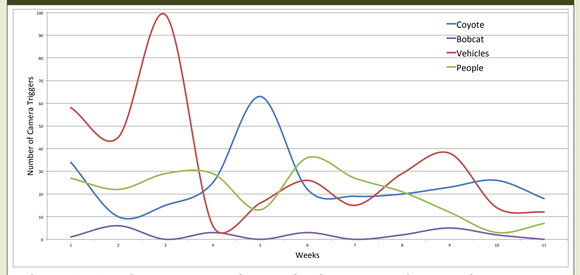

Figure 7. Total trap success by week of cameras close to the underpass. Measured in the number of photos taken of each species per week. The steep decrease in vehicle and human traffic after week 4 was attributed to a lock being placed on the main road leading to the underpass.

Table 1. Species photographed at each set of cameras and associated number of trap nights.

Trap Nights	*286*	*101*	*42*
Animals Found	**Close**	**Far**	**Underpass**
Coyote	✓	✓	✓
Mule Deer	✓	✓	
Bobcat	✓	✓	✓*
Striped Skunk	✓	✓	✓*
California Ground Squirrel	✓		
Audubon's Cottontail	✓		✓*
Gray Fox		✓	
American Badger	✓*		✓

* Indicates that this species was documented in this location after field work for this project ended.

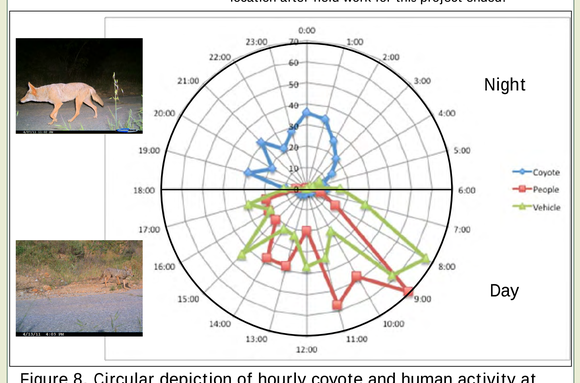

Figure 8. Circular depiction of hourly coyote and human activity at underpass and close camera sets. Time in hours is represented on the circumference of the graph and number of camera triggers is on the radius. Photos show a typical nighttime detection of a coyote and a rare daytime example.

Species	Trigger Total
False Triggers	666
Vehicles	424
Coyote	329
Research	180
People	118
Multiple People	58
Bobcat	27
People with Bikes	20
Deer	15
Striped Skunk	12
Unknown	11
People with Dogs	7
Audubon's Cottontail	5
Dogs	4
Squirrel	3
People with Horse	3
Multiple Coyote	2
Crow	2
American Badger	2
Multiple Deer	1
Gray Fox	1
Grand Total	1890

Table 2. Camera trigger totals.

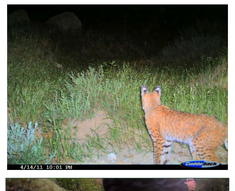

Figure 9. Bobcats were detected at all camera locations.

Figure 10. Most human activity was recorded in daylight hours (camera C4).

CONCLUSIONS

1. Los Piñetos Underpass had high wildlife use.
2. Wildlife activity was inversely correlated with human use.
3. Development near the underpass would likely degrade corridor function.
4. Longer-term monitoring and new monitoring of possible connections across I-5 will be important to regional planning for wildlife connectivity.

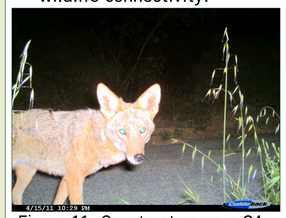

Figure 11. Coyote at camera C4.

Figure 12. Gray fox at F3.

Figure 13. Bobcat at C1.

Figure 14. Striped skunk at C1.

Figure 15. Mule deer at C4.

Figure 16. Bobcat kitten at F1.

Figure 17. This study was the first documentation of American badger at this site; the first photo was at camera U2 on 5/15/2011 1:15 AM. The photo here was a subsequent detection at U2.

Figure 18. This project was done as a UCLA IoES Senior Student Practicum by students (from left) A. Swauger, A. Tashnek, B. Scruggs, D. Schreck, R. Freidin, and (not pictured) E. Shulman with advisors E. Boydston and T. Longcore.

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Freidin, R., D. Schreck, B. Scruggs, E. Shulman, A. Swauger, A. Tashnek, E. Boydston, and T. Longcore. 2011. Wildlife use of the Los Piñetos underpass, Santa Clarita, California. UCLA Institute of the Environment and Sustainability. (student authors alphabetical) *http://www.environment.ucla.edu/media_IOE/files/Wildlife-Use-Los-Pinetos-os-peo.pdf*

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ACKNOWLEDGMENTS

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