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Case Study: Harbor Boulevard Wildlife Underpass, Los Angeles County, California

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Abstract:
Wildlife in Metropolitan Los Angeles now have an underpass designed and built exclusively for their safe passage under a busy boulevard. The underpass supports the longevity of the Puente-Chino Hills Wildlife Corridor (Corridor). The Corridor contains some of the last remaining stands of several habitat types that are declining in the Los Angeles Basin. The 31-mile Corridor connects vast open space areas and provides a rare opportunity to preserve functional wildland in southern California. The Harbor Boulevard Wildlife Underpass is the linkage point within this Corridor for approximately 4,600 acres of publicly protected habitat to the west and about 14,000 acres of publicly protected habitat to the east. It strengthens the biodiversity of all lands to the west and adds to the richness in the east. Harbor Boulevard was constructed in 1990 with oversight to wildlife movement in the area. Wildlife populations west of Harbor, especially the bobcat population, would have become completely isolated, and possibly extirpated, if safe passage across Harbor Boulevard was not created. A wildlife movement study, completed in 1999, identified mammalian movement up to and across Harbor Boulevard at the project location. While the purpose of the study was not to count wildlife killed by vehicles, researchers compiled significant roadkill data for Harbor Boulevard. They recommended a specific location for a wildlife underpass to strengthen the connectivity of wildlife habitat and movement. Armed with this scientific data and with support from elected officials, public agencies and local nonprofit organizations, the Habitat Authority, a local government park agency, together with the County of Los Angeles and the California Department of Parks and Recreation took on this project. They

pursued and were successful in obtaining grant funding for construction costs. The underpass was designed to accommodate large-to medium-sized mammals. California State University, Fullerton Foundation was hired to monitor wildlife before, during, and after construction. Just nine days after the grand opening celebration of the underpass, deer were photographed using the tunnel. Coyotes and deer appear to regularly use the underpass and bobcat have been detected using the tunnel as well. The underpass project is unique in that it is the first wildlife underpass built by the County of Los Angeles. It is a multi-agency collaborative project that took over nine years to come about. It is a goodwill project that acts as a habitat linkage designed to reduce the amount of vehicle-caused wildlife mortality, and the risk of accidents that could cause harm for motorists.

Case Study: Harbor Boulevard Wildlife Underpass, Los Angeles County, California

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Abstract: Wildlife in Metropolitan Los Angeles now have an underpass designed and built exclusively for their safe passage under a busy boulevard. The underpass supports the longevity of the Puente-Chino Hills Wildlife Corridor (Corridor). The Corridor contains some of the last remaining stands of several habitat types that are declining in the Los Angeles Basin. The 31-mile Corridor connects vast open space areas and provides a rare opportunity to preserve functional wildland in southern California. The Harbor Boulevard Wildlife Underpass is the linkage point within this Corridor for approximately 4,600 acres of publicly protected habitat to the west and about 14,000 acres of publicly protected habitat to the east. It strengthens the biodiversity of all lands to the west and adds to the richness in the east. Harbor Boulevard was constructed in 1990 with oversight to wildlife movement in the area. Wildlife populations west of Harbor, especially the bobcat population, would have become completely isolated, and possibly extirpated, if safe passage across Harbor Boulevard was not created. A wildlife movement study, completed in 1999, identified mammalian movement up to and across Harbor Boulevard at the project location. While the purpose of the study was not to count wildlife killed by vehicles, researchers compiled significant roadkill data for Harbor Boulevard. They recommended a specific location for a wildlife underpass to strengthen the connectivity of wildlife habitat and movement. Armed with this scientific data and with support from elected officials, public agencies and local nonprofit organizations, the Habitat Authority, a local government park agency, together with the County of Los Angeles and the California Department of Parks and Recreation took on this project. They pursued and were successful in obtaining grant funding for construction costs. The underpass was designed to accommodate large-to medium-sized mammals. California State University, Fullerton Foundation was hired to monitor wildlife before, during, and after construction. Just nine days after the grand opening celebration of the underpass, deer were photographed using the tunnel. Coyotes and deer appear to regularly use the underpass and bobcat have been detected using the tunnel as well. The underpass project is unique in that it is the first wildlife underpass built by the County of Los Angeles. It is a multi-agency collaborative project that took over nine years to come about. It is a goodwill project that acts as a habitat linkage designed to reduce the amount of vehicle-caused wildlife mortality, and the risk of accidents that could cause harm for motorists.

Introduction

Wildlife in the Los Angeles Basin now can cross between open space areas on either side of a busy boulevard due to a collaborative win-win effort between Los Angeles County, California Department of Parks and Recreation (California State Parks) and the Puente Hills Landfill Native Habitat Preservation Authority (Habitat Authority). The project is unique in that it is the first wildlife underpass built by the County of Los Angeles, and was not mandated by regulatory agencies from development impacts. The construction of this wildlife underpass was widely supported by numerous municipalities, political representatives and community groups. The result is a safer road for wildlife and motorists, as well as an insurance policy of sorts for biodiversity to support the preexisting public investment of preserved open space in the region.

Background

The Puente-Chino Hills Wildlife Corridor (Corridor) is approximately 31 miles long and extends from Los Angeles County Whittier Narrows areas in the west to the Cleveland National Forest in Orange County to the east. Despite its long history of use and proximity to urban development, the connectivity still present in the Puente-Chino Hills provides a rare opportunity to preserve a functional wildland in southern California. The Corridor contains some of the last remaining stands of several habitat types that are declining in the Los Angeles Basin including walnut and oak woodlands, chaparral, native grasslands and coastal sage scrub. It sustains important habitat for a number of native animal species including the coastal California gnatcatcher (*Polioptila californica*), cactus wren (*Campylorhynchus brunneicapillus*), mule deer (*Odocoileus hemionus*), mountain lion (*Puma concolor*), coyote (*Canis latrans*), bobcat, American badger, and gray fox. The first two species are target species of regional habitat planning efforts in Southern California. The combined vegetation provides habitat for a unique assemblage of plants and animals. Biologically, this area preserves a microcosm of the California Floristic Province, an identified biodiversity hot spot in North America and a genetic reserve for the continent. As a result, the area is regionally and globally significant as a prime example of this unique habitat web, yet it occurs in an area that is almost completely surrounded by existing urban development. The Corridor provides food, cover, breeding grounds, and refugia in the event of a large disturbance, and contributes to species diversity, dispersal routes for juveniles, home ranges, and the transfer of genetic material, which help maintain healthy populations (Draft Resource Management Plan, 2007).

Located in a metropolitan region of nearly 20 million people and within a thirty-minute drive from downtown Los Angeles, the Corridor provides visitors a unique opportunity to experience natural resources in a setting not commonly found in the highly urbanized Los Angeles region. The Corridor provides a range of recreation opportunities and activities including hiking, jogging, mountain biking, horseback riding, nature appreciation, and wilderness education. The challenge for the Habitat Authority as well as other land managers in the area is to balance natural resource protection and low-impact recreation (Draft Resource Management Plan, 2007).

The Habitat Authority was established in 1994 as a joint powers authority. It has a Board of Directors made up of the City of Whittier, the County of Los Angeles, the Sanitation Districts of Los Angeles County and the Hacienda Heights Improvement Association. The Habitat Authority is dedicated to the acquisition, restoration, and management of open space in the Puente Hills for preservation of the land in perpetuity, with the primary purpose of protecting biological diversity. Additionally, the agency endeavors to provide opportunities for outdoor education and low-impact recreation. To date, the Habitat Authority owns and/or manages 3,860 acres of open space. Extensive efforts of various entities have been made to purchase and preserve more than 19,000 acres of public land within the Corridor.

Overall, the Harbor Boulevard Wildlife Underpass within the Habitat Authority's jurisdiction is the linkage point for approximately 4,600 acres of publicly protected habitat to the west and about 14,000 acres of publicly protected habitat to the east. It will strengthen the biodiversity of all lands to the west that are managed by the Habitat Authority and add to the richness in the east. Harbor Boulevard was constructed in 1990, impacting wildlife movement in the area.

Open space on either side of the boulevard used to be owned by Los Angeles County Department of Public Works (LA Co. Public Works), but is now owned by the Habitat Authority, and the road is currently owned and maintained by LA Co. Public Works. Harbor Boulevard is a major thoroughfare that connects Orange and Los Angeles Counties. It is a 4-lane road with legal speeds allowed up to 50 miles per hour. In 2001, the Average Daily Traffic (ADT) for Harbor Boulevard was 28,585 vehicles, which has most likely only increased since. Motorists use Harbor Boulevard in their commute to job sources in Los Angeles County and Orange County. It directly connects to the 60/Pomona Freeway and the 90/Imperial Highway, which hundreds of thousands of commuters use daily. With continued development in the Los Angeles Basin and subsequent increased traffic over time this Harbor Boulevard crossing point if left unimproved would have become more risky for wildlife and motorists.

Scientific Momentum

Even though an ample amount of habitat fragmentation has occurred in the Corridor, the largest remaining carnivore in the region, the mountain lion, is still known to use the biological corridor at Coal Canyon that connects the Chino Hills, in the eastern portion of the Corridor, to the Cleveland National Forest (Beier 1995). Mountain lion prints and sightings have also been confirmed by the California Department of Fish and Game in 2003 and by the Habitat Authority as recently as 2005 in the western portion of the Corridor.

A wildlife movement study completed in 1999 and conducted by Chris Haas while at California State Polytechnic University, Pomona, and Kevin Crooks while at University of San Diego, identified mammalian movement up to and across Harbor Boulevard at the project location. While the purpose of the study was not to count wildlife killed by vehicles, researchers found 7 killed coyotes on Harbor Boulevard as a result of vehicle collisions within a period of 3 months in 1997. The study documented that this area was still frequently utilized by wildlife such as deer, bobcat, fox, raccoon, coyote, skunk and opossum. However, they found that bobcats did not traverse either side of the road. The location of the underpass was identified as the most active area for wildlife crossing between the open space habitat areas of the Puente Hills. They strongly recommended the location for a wildlife underpass to strengthen the connectivity of wildlife habitat and movement.

Wildlife movement is important to ensure a healthy functioning ecosystem for the long- term. Movement allows for species to find food, water, shelter, and mates, and to mark and defend territories. Also, movement ensures genetic diversity within species populations that is critical for their survival. If habitats become fragmented, genetic diversity declines. This leads to species populations running the risk of genetic decay, which can lead to extirpation from an area resulting in severe cascading effects throughout the ecosystem. Wildlife populations, especially the bobcat population west of Harbor Boulevard, could have become completely isolated and possibly extirpated if safe passage across Harbor Boulevard was not made certain.

Funding and Construction Process

Armed with this scientific data and biological knowledge of the importance of installing an underpass, support was gained easily from four elected officials, four local cities, two wildlife agencies and four local nonprofit organizations. The project was viewed as a win-win for wildlife and people. There had already been tremendous community and municipal support for the Corridor with the activities of the local government agency the Wildlife Corridor Conservation Authority, created specifically to preserve the Puente-Chino Hills Corridor.

In the year 2000, once the momentum was gained and spurred by a scientific foundation, the Los Angeles County Sanitation Districts (Sanitation Districts), a partnering agency on the Board of Directors for the Habitat Authority, put together initial cost estimates for an underpass, and helped develop a Request for Proposals for an engineering firm

to design the underpass. Project design began in March 2001; it was paid for by the Habitat Authority and supervised with significant help from the Sanitation Districts, and plans were reviewed by the LA Co. Public Works every step of the way. The corrugated metal underpass was designed with assistance from contracted biologist Chris Haas, to accommodate large-to medium-sized mammals, and was sized to be 6.09 m (20') span, 5.18 m (17') rise and 48.76 m (160') in length. The fencing element was eliminated from the design after a compromise could not be achieved between the Habitat Authority and a private land owner, AERA Energy LLC, who owns land abutting the road.

Also in late 2000, the search for construction funding began. The project was embraced by a vital supporter Los Angeles County Supervisor Don Knabe and the LA Co. Public Works. LA Co. Public Works as the lead applicant and the Habitat Authority as a co-sponsor were successful in being awarded grant funds from the Metropolitan Transportation Authority (MTA) share of regional Transportation Enhancement Activities (TEA) in the amount of $901,000. Since this was not enough to complete the project, California State Parks was asked to get involved. As a long-time supporter of the Corridor they, as the lead applicant, with LA Co. Public Works and the Habitat Authority as partners, were successful in being awarded another grant through the California Department of Transportation (Caltrans) for Statewide TEA funds in the amount of $337,000. All funding was transferred to LA Co. Public Works for administration. These grant requests were successful in part because of the following widespread local support: Congresswoman Grace Napolitano, Congresswoman Hilda Solis, Senator Bob Margett, Senator Gloria Romero, United States Fish and Wildlife Services, Wildlife Corridor Conservation Authority, City of Brea, City of La Habra, City of La Habra Heights, City of Whittier, Hills For Everyone, Friends of the Tecate Cypress, Friends of the Whittier Hills and Vantage Pointe Homeowners Association. This grant funding in the total amount of $1.2 million was obtained and administered by LA Co. Public Works, and the Habitat Authority provided the needed local matching funds in the amount of $146,265.

Negotiations for land acquisition on either side of the boulevard began in 2001 between the Habitat Authority and Los Angeles County Department of Public Works who owned open space on either side of the road. In March 2004, 19.9 acres were purchased from the County.

At this point it was a matter of taking several sequential steps to complete this project. Preconstruction mammalian movement and road kill monitoring began in July 2004, by Dr. Paul Stapp and student David Elliot from California State University, Fullerton, contracted by the Habitat Authority. Biological monitoring before, during, and after construction is being conducted in three ways: track surveys, roadkill surveys and camera surveys. In August 2004, the Habitat Authority hired the retired Director of LA Co. Public Works, Harry Stone, who played a key role in overseeing the project. The environmental review process for the construction of the underpass was conducted by LA Co. Public Works and completed in November 2004. Easements for the construction were granted in February 2005, and the contract for construction was approved by both the County and Habitat Authority in July 2005. Construction was managed by LA Co. Public Works and was successfully completed in May 2006 (See figure 1).

Figure 1. Completed underpass at Harbor Boulevard located in the City of La Habra Heights (Los Angeles County) May 2006.

The Grand Opening for the Harbor Boulevard Wildlife Underpass was held on Thursday, June 1, 2006, and just 9 days after the ceremony, researchers captured a photo of a mule deer using the underpass (see figure 2). Deer and coyotes were detected using the underpass just 3-4 weeks after installation of the cameras (Elliott 2006). Camera surveys will continue until May 2007, and the biological monitoring report will be completed in December 2007. Initial findings show that in addition to coyotes and deer, bobcats are also using the underpass.

Figure 2. First deer captured on film using the Underpass at Harbor Boulevard, 9 days after the Opening Ceremony (Elliott).

Additional Benefits of the Project

This project benefits not only wildlife and motorists, but also the public by greatly enhancing the nearby existing rural community environment through helping maintain a healthy biologically diverse regional ecosystem. This subsequently can improve the community's quality of life.

Open space is more than an amenity; it is an essential component of community life, producing measurable health, social, and economic benefits. Public investment in parks and open space has shown to invigorate community revitalization, increase property values, reduce health care costs, improve productivity, and stimulate tourism. This project will contribute to these ends by helping maintain a healthy regional ecosystem and enhancing the nearby rural community environment. This in turn will improve the quality of life in the surrounding communities, making them more appealing places to live and work.

Conclusion

A collaborative effort takes time, but is sometimes the only way a project can be realized. The scientific information gathered in 1999 made it possible to move forward and gain widespread community backing for the project. On the whole, acquisition of open space in the region, state, nation and world is necessary to promote biodiversity and a healthy planet, but is not the only call to action. In essence, this underpass is an attempt by humans to accommodate and peacefully co-exist with their wild neighbors – to give them back what was once available to them. Learning to live with our wild neighbors before, during and after open space acquisitions will in fact be what promotes healthy environments and healthy human as well as non-human populations.

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Biographical Sketch: Andrea Gullo is the Executive Director for the Habitat Authority. She has a M.A. from UCLA in Urban Planning.

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