

# IMPACT REPORT

JUNE 2023

## **Wildlife Connectivity** from the Santa Cruz Mountains to the Gabilan Range



**LAND TRUST**  
SANTA CRUZ COUNTY

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# Introduction

State route 17 in California, commonly known as Highway 17, is a scenic road that runs through the Santa Cruz mountains, linking San Jose (the largest city in Northern California) and Santa Cruz (a tourist hotspot and Silicon Valley bedroom community on the northern edge of Monterey Bay).

Built in the 1930's, the roadway's narrow lanes and dangerous curves make it particularly difficult and dangerous to negotiate—for people and animals alike. As 60,000 vehicles a day traverse the four-lane mountain highway, sharp turns, blind curves, heavy traffic, and animals attempting to cross the roadway have caused numerous serious and sometimes fatal accidents.

In 2012, CalTrans installed median barriers at a particularly treacherous piece of the road known as Laurel Curve. This effort to increase safety for people unfortunately made it even more difficult for animals such as deer, bobcats, foxes, and mountain lions to make their way through traffic. Extensive roadkill data would eventually point to Laurel Curve as the deadliest section of the highway for wildlife.

**The data made it clear – a crossing was critical to both providing a path for wildlife to safely travel between habitats and ensuring driver safety by keeping wildlife away from the highway.**

## LAUREL CURVE ROADKILL DATA THREE YEARS

**12**

RECORDED DEER COLLISIONS

**4**

RECORDED MOUNTAIN LION  
COLLISIONS







## Habitat Fragmentation & the Need for Wildlife Connectivity

Mountain lions have become increasingly isolated by habitat fragmentation due to urban and agricultural development in the valleys that surround the Santa Cruz Mountains. Barriers to wildlife movement, including fencing, roads and highways, and the presence of people and dogs, has inhibited the genetic flow that is essential to maintaining a healthy and sustainable population of mountain lions.

Regional isolation, combined with a lack of genetic diversity and habitat, has put Santa Cruz mountain lions on a fast track to becoming inbred. In the Santa Cruz Mountains, cats with kinked tails have already been seen.

The long-term viability of wide-ranging species like the mountain lion requires linkages between large natural patches of habitat both within the Santa Cruz Mountains and between the Santa Cruz Mountains and the neighboring Diablo and Gabilan ranges.

**According to experts, there needs to be two new individuals immigrating into a population each year to maintain a genetically healthy population.**

*"The rich biodiversity of Santa Cruz County is dependent on maintaining its diverse habitats. Maintaining large intact patches of habitat and connections between them is critical for plants and wildlife, including large roaming mammals like mountain lions and badgers.*

*The Blueprint finds that 20% of the county's habitat has already been fragmented by development, agriculture, and mining. "*

Conservation Blueprint,  
Land Trust of Santa Cruz County

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# Power of Partnering

With extensive data collected by wildlife cameras, it became apparent that providing a wildlife linkage out of the Santa Cruz Mountains was critically important. Though none of the relationships existed yet, the Land Trust was beginning to gather a collaborative group of concerned biologists, citizens, and government agencies.

Pathways for Wildlife conducted a three-year study in which they used field cameras and roadkill data to determine the best location for a wildlife crossing. This analysis included contributed telemetry data from the UC Santa Cruz Puma Project to determine that Laurel Curve would be the optimum location to create a wildlife crossing. Pathways for Wildlife and the Land Trust worked closely with Caltrans in developing these wildlife connectivity enhancement recommendations.

They then ranked these potential projects using telemetry data from the UC Santa Cruz Puma Project and feedback from Caltrans on which culverts would be easiest to retrofit.

The report showed that there were surprisingly few culverts along this stretch of highway and that none were large enough to serve as a wildlife crossing. These culverts were also located in heavily developed areas, where Santa Cruz Puma Project's research showed that mountain lions were much less likely to travel. The report concluded that Laurel Curve is the most suitable location to create a wildlife linkage across Highway 17 in Santa Cruz County.

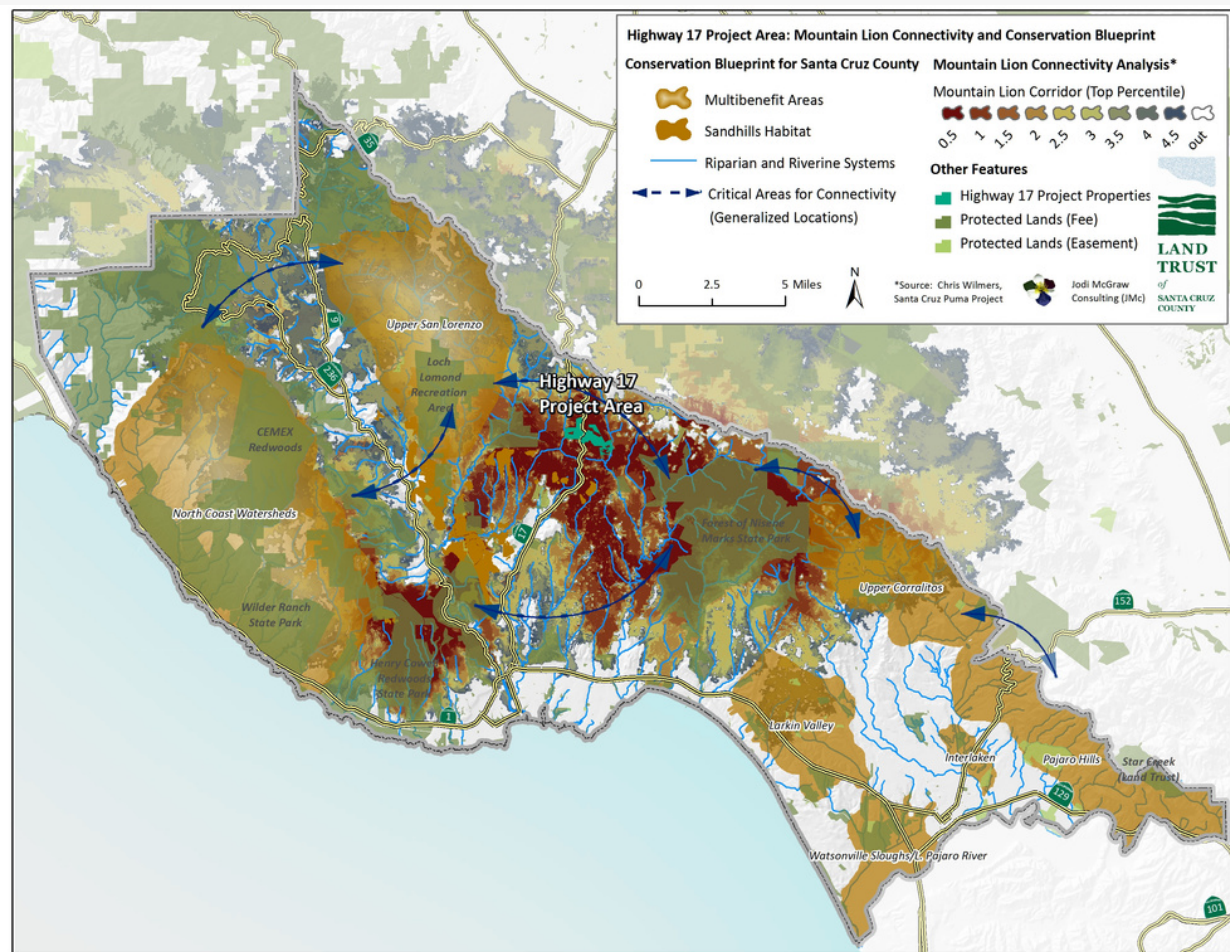
**The tracking data from these two organizations would eventually garner support and buy-in from Caltrans, elected officials, several major funders, and the surrounding community.**

*"We set out to understand how humans influence everything from the physiology and behavior of these animals to their ecology and populations, and ultimately their conservation management. We formed a collaboration with engineers to collar animals to understand them better and how human houses and roads influence everything these lions do."*

*We set up an experiment near where the mountain lions were feeding, and we played the sounds of people talking (the treatment) and the sound of frogs (the control). When they heard the frogs, the mountain lions would look up for a second and then continue eating. When they heard a human voice, they would run away in fear—people influence everything these animals do."*

Chris Wilmers, UCSC Puma Project

# Why Laurel Curve?



Laurel Curve, located where several large tracts of land cross a saddle between high points in the mountain range, looked promising. The data had proven that mountain lions and deer routinely try to cross the highway at Laurel Curve, causing many collisions with motorists. There were large, undeveloped properties on either side of the highway to facilitate wildlife movement. Finally, this section of highway is built over a dip in the landscape, making it the ideal place to install an underpass for animals to travel beneath the highway.

Tracking data from the Puma Project, roadkill and camera data from Pathways for Wildlife, and traffic and accident data from Caltrans, created a shared foundation of science and purpose that would be critical in garnering support and buy-in from Caltrans, elected officials, several major funders, and the surrounding community.



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# Breaking New Ground



One critical aspect of this project was protecting the Laurel Curve wildlife corridor from future development. It makes no sense to build a wildlife crossing in a neighborhood! Laurel Curve is unique in that it consists of relatively large parcels on either side of the highway and is the least developed area between the city of Scotts Valley and the summit of Highway 17. The Land Trust acted fast to protect 190 acres on the west side and 280 acres on the east side of Laurel Curve, for a total of 470 acres—sufficient acreage to create and sustain the wildlife corridor across Laurel Curve.

To secure the properties straddling the wildlife crossing, and to build the underpass itself, the project received funding from Land Trust members, private foundations, and state agencies. The voters of Santa Cruz County approved Measure D in 2016, which the Santa Cruz County Regional Transportation Commission put on the ballot to fund the underpass alongside other transportation improvements. Local construction firm Graniterock built the crossing.

## ABOUT THE KEY PARTNERS

**THE PUMA PROJECT** at the University of California Santa Cruz and **Pathways for Wildlife** were critical in providing the necessary science to move forward. The Puma Project is a partnership between UC Santa Cruz and the California Department of Fish and Wildlife. Their work involves deploying telemetry collars on mountain lions that collect continuous movement and location data from each animal and publishing their findings in academic journals.

**PATHWAYS FOR WILDLIFE** works with land trusts, conservation organizations, and transportation agencies, to help identify important wildlife and habitat linkages for land conservation efforts by conducting wildlife connectivity surveys and implementing connectivity designs for wildlife movement within a landscape. Data collection used to develop wildlife connectivity plans includes data from field cameras, roadkill surveys, tracking data, GIS habitat suitability modeling, and linkage analyses.

**SENATOR JOHN LAIRD** (then Natural Resources Secretary), then Assemblymember Mark Stone, and Caltrans leadership and staff were pivotal in establishing the funding mechanism to move the project forward. SB 790, an innovative new law championed by the Land Trust and supported by Santa Cruz County voters facilitates giving credit to agencies and businesses that increase wildlife connectivity on their land.

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# Our Goals & Objectives



As of January 2023, the Laurel Curve crossing is complete, but it is just the beginning in protecting and restoring wildlife movement between the Santa Cruz Mountains and the Gabilan Range.

A second crossing, this one an overpass across Highway 101 is in the planning stages. With these two wildlife crossings—one complete, one in design—the Land Trust of Santa Cruz County, its partners, and supporters are working to restore wildlife connectivity between these neighboring Central California mountain ranges. Partnerships in the larger region are advancing wildlife connectivity for the Santa Cruz Mountains across the northern half of Highway 17 near Lexington Reservoir and in Coyote Valley south of San Jose.

**HWY101 is another hard barrier for wildlife, especially long-ranging animals like the mountain lion, on their journey to the Gabilan Range and new breeding territory.**

**The UCSC Puma Project tracked one mountain lion that had successfully crossed HWY17 only to be killed while crossing HWY101 as he tried to find safe passage onto Rocks Ranch and into the Gabilan range.**



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# Next Step: Gabilan Range



In December 2022, the Land Trust completed a \$61M, three-year capital campaign to fund an array of Land Trust projects, including the protection of Rocks Ranch—a 2600-acre property in the northern Gabilan Range that abuts a 2.5-mile stretch of Highway 101 that is currently a “hotspot” for wildlife-vehicle collisions.

Rocks Ranch is just three miles south of the Land Trust’s Star Creek Ranch, which is located in the heart of the southern Santa Cruz Mountains. The next goal is building a Rocks Ranch to Star Creek connection.

To make the landscape linkage between the Santa Cruz Mountains and the Gabilan Range a reality, the Land Trust has convened a collaboration involving over 20 organizations, including nonprofits, local, state, and federal agencies, the Indigenous community, universities, and private businesses.

With support from the Wildlife Conservation Network, our goal is to develop and implement an action plan, based on science and culture, focused on addressing the bottleneck in the landscape. As we look towards the coming century of climate change, we aim to ensure that this landscape is permeable to both individual animals and to gene flow.

**With Rocks Ranch fully protected, Caltrans was able to initiate the design process for the Highway 101 crossing in April of 2022. In February of 2023, the Land Trust partnered with UC Davis researchers to begin tracking pumas at Rocks Ranch in order to pinpoint where lions are attempting to cross HWY101 from Rocks Ranch.**



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# A Successful Model



These projects overall have increased focus on wildlife connectivity in California and beyond, as drought and climate-fueled wildfires pressure animals to seek new habitats. Thanks to the Land Trust's pioneering work at Laurel Curve, the policy and process tools are now in place not only for the completion of a crossing over HWY101, but for crossings to be built throughout California.

*"Turning land protection into an undercrossing project required process and policy innovation, and strong partnerships with elected leaders, the Regional Transportation Commission, and Caltrans. The model was so successful that it became the basis for SB 790, a state law that is catalyzing wildlife cross projects throughout California."*

Sarah Newkirk, Executive Director, Land Trust of Santa Cruz County

*"The Land Trust of Santa Cruz County was instrumental in laying the groundwork for streamlining wildlife crossing development. Hundreds of miles away in the Mojave Desert region, we are using their successful project as an inspiration and model for our own important work. We are working on initial plans for a wildlife crossing that will support bighorn sheep and other desert species, adding to the critical wildlife connectivity work underway across California."*

Cody Hanford, Joint Executive Director, Mojave Desert Land Trust

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# The Team



## THANK YOU TO OUR PARTNERS!

Members of the Land Trust of Santa Cruz  
Santa Cruz County Voters  
The David and Lucille Packard Foundation  
The Gordon and Betty Moore Foundation  
The Resources Legacy Fund  
Caltrans  
Pathways for Wildlife  
UCSC Puma Project  
Santa Cruz County Regional Transportation Commission  
California Wildlife Conservation Board  
California Department of Fish and Wildlife  
California Department of Conservation  
California Transportation Commission  
California State Coastal Conservancy  
Wildlife Conservation Network  
Graniterock

**For additional information and resources, visit:**  
**[landtrustsantacruz.org/protected-areas/highway-17-wildlife-crossing](https://landtrustsantacruz.org/protected-areas/highway-17-wildlife-crossing)**