

## Species and Sprawl: A Road Runs Through It

### Species and Sprawl: Mountain Lions

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**N**ot unless you were the last lion on Earth!”

When P1, an adult male mountain lion who roams the 620 sq km Santa Monica Mountains just outside Los Angeles, took stock of his mating options last summer, his pickings were slim. As far as ecologists are aware, his choice, P2, may have been the only female in existence in the entire range.



P6, a female, is one of four cougar cubs born in the Santa Monica Mountains last August.

Courtesy of National Park Service

There *are* other fish in P1’s sea, which is a chain of protected areas to the north of the coastal range. But P1 can’t get to these areas easily. A six-lane freeway, U.S. 101, divides the Santa Monicas from the gently sloping Simi Hills directly to the north. Above the Simi Hills, Highway 118 bars safe passage into the Santa Susana Mountains. Finally, for P1 to get from the Santa Susanas to the lion-dotted paradise of Los Padres National Forest, a vast coastal range that reaches nearly to the Bay Area, he would have to seek out and sneak through green corridors of undeveloped land perhaps just 20 m wide.

However reluctantly paired, P1 and P2 produced four lion cubs in late August, according to Seth Riley, a National Park Service wildlife ecologist who has been tracking the two via radio and GPS collars for two and a half years. But Riley and other scientists and conservationists worry that the Santa Monica range is too small for at least six lions to coexist and reproduce. In fact, in crowded California, sprawl is now the main threat to 66 percent of the state's 286 endangered species.

Many believe that the animal-friendly antidote to California's urbanization is to make the corridors—called linkages—between disparate patches of wild lands truly useable by many different species. Currently, the South Coast Missing Linkages Project is taking the charge seriously. They are working to identify, unite, and protect Southern California's 15 most threatened habitat connections before new development encroaches. Establishing a crossing at Highway 101 is among the project's highest priorities.

### **A Home on the Range**

As far as cougar habitat goes, the Santa Monicas aren't half bad—literally. About 300 of its 620 sq km of craggy, scrub-and-oak-dotted mountains remain open to development, which is still sparse despite continuous pressure from Los Angeles's ever-eager appetite for housing. "At this point," says Riley, "there seems to be quality habitat and plenty of deer to eat."

While P2 requires only about 100 sq km of land, P1's space needs—about 400 sq km—gobbles up nearly the entire Santa Monica range. "Adult male lions don't tolerate a lot of other adult males in their area," says Riley. Since male mountain lions, like all cats, do not raise their young, it's unlikely that P1 would recognize his two sons, and he may even eliminate this competition. "Certainly they'll fight," says Riley. "Sometimes they'll even kill each other."

All told, Riley predicts, the Santa Monicas can support fewer than 10 lions. "But 10 lions is not a population," says Riley. "For genetic and demographic reasons, that's just not enough." Inbreeding, and therefore genetic mutation and disease, increases when populations of large carnivores like cougars,

bears, wolves, and wolverines become isolated by development and agriculture. Such problems have sidelined Florida panthers, a subspecies of mountain lion, whose population has been hovering near 50 for decades. Since 1988, Texas cougars have periodically been introduced to Florida to increase genetic diversity.



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California mountain lions and other wildlife must cross Highway 101 to travel from the Santa Monica Mountains (foreground) to the Simi Hills.

Courtesy of National Park Service

It's possible that the young male cougars could seek genetically novel mates in the Simi Hills and beyond by crossing 101 where the scrubby foothills dip slightly, a spot called Liberty Canyon. Here, an underpass exists for a 1.6 m wide drainage culvert and a two-lane road that leads, eventually, to a housing development. Save for an office park and a few other buildings, the vista on both sides of the canyon is natural—a virtue that makes Liberty Canyon one of the two remaining likely animal exits out of the Santa Monicas. P1 and P2 are tracked regularly (once an hour at times), but they have yet to cross over or under 101. P3, a young male who prowls the Simi Hills, has not crossed from the north side of this freeway, either.

#### **Los Padres or Bust!**

As with turtles, the loss of a few individuals can significantly harm entire populations of big predators,

since they live longer and reproduce less than most animals do. While scientists remain unclear about exactly what ecological effects a significant loss of cougars could have on the California chaparral community, most scientists agree that animals near the top of the food chain play an important role in biological communities—and in conservation. “Big predators represent the ultimate challenge,” notes Riley. “If we’re able to conserve enough land for them, we’ll potentially be able to conserve most things in their habitat. Plus, big predators are a powerful symbol of wilderness and effective stewardship of lands.”

For these reasons, “the mountain lion is a focal species in every one of our 15 linkages,” says Kristeen Penrod, executive director of South Coast Wildlands, which manages the Missing Linkages effort. Right now, the project is collaborating with the National Park Service, the California Department of Transportation (Caltrans), the Nature Conservancy, and other private and public groups to make Liberty Canyon navigable by lions, deer, bobcats, and other species. The linkage’s first priority, securing the slopes on either side of the canyon from further development and revegetating bare spots, has already been accomplished. In the future, Caltrans may widen and vegetate part of the 101 underpass for both vehicular and quadruped use, install a vegetated land bridge over the highway, or both. Similar suggestions are being considered to enhance connectivity along each link of the entire fragmented land chain from the Santa Monicas to Los Padres National Forest.

“If all 15 of Southern California’s priority linkages were protected, we’d really have the backbone of a regional conservation strategy in place,” says Penrod. “Our project partners want to see our methods used throughout the rest of the state.” Or, perhaps, the nation. In its wildest dreams, the Wildlands Project, a national group working throughout the continent, hopes to reconnect a 6,500 km swath of land along the Rocky Mountains from Canada’s Yukon through Mexico’s northern Sierra Madre. While it’s unlikely that the mountain lion will ever regain its historic range, which was once nearly all of North and South America, getting it safely across the street is, at least, a start.

## Related Links

- **South Coast Wildlands**  
<http://scwildlands.org/>
- **National Park Service**  
<http://www.nps.gov/>
- **The Nature Conservancy**  
<http://nature.org/>
- **Federal Highway Administration: Critter Crossings**  
<http://www.fhwa.dot.gov/environment/wildlifecrossings/>  
Nationwide efforts to link habitats and reduce roadkill.
- **Mountain lion news from UC Davis' Wildlife Health Center**  
<http://www.vetmed.ucdavis.edu/whc/recentpress.cfm#lions>  
Stay in step with the future of the Santa Monica cubs.

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