

LIGHT & SEED™

WINTER/SPRING 2025

**“HOW DO I CULTIVATE
THIS SAME FEELING IN
THE THOUSANDS OF
YOUTH WE SERVE?”**

Lesford Duncan on bringing nature-inspired awe to urban communities

NATURE Rx

Georgia's Chattahoochee-Oconee National Forest helps one writer heal from heartbreak

THE OTHER SIDE

How wildlife crossings reconnect at-risk ecosystems near major cities



RIGHT OF WAY

How a decades-long investment in reconnecting animals isolated by roadways led to what will soon be the largest wildlife crossing in the world.

BY ANDREA RICHARDS

Birdseye view of the Annenberg Crossing in Los Angeles.
Image by Rock Design Associates and the National Wildlife Federation



Between mileposts 61 and 62 on Washington State's I-90, a herd of elk bed down on the gentle slope of what appears to be a forested hill. Only the animals are 60 feet in the air, relaxing on a bridge that has been designed to allow them safe passage over the busy roadway—and to look like their surroundings.

"They're using the structures, they're living in the structures, they're nursing their young in the structures," said Mark Norman, a biologist with the Washington State Department of Transportation (WSDOT). "It's really amazing to see."

Norman monitors the 150-foot-wide overpass on remote cameras, observing around 5,000 crossings per year of deer, elk, and coyote. "That's up to 5,000 times that animals did not get hit on the roadway," he said.

The wildlife bridge is a part of the 15-mile Snoqualmie Pass East Project, a more than two-decade-long undertaking that will consist of at least 15 large wildlife crossings when completed in 2032. Most will be underpasses and culverts, structures drivers on the road likely won't notice. But wildlife certainly will.

The WSDOT first began investigating Snoqualmie Pass for avalanche danger. The high-mountain route, which cuts through the Cascade Range and Okanogan-Wenatchee National Forest, is notoriously prone to snow and rock slides. As Washington's primary east-west route, its frequent closures weren't only impacting travelers but costing the state. A four-day shutdown in 2008 resulted in a loss of \$1.5 million in state revenue and \$28 million in economic output.

Before the project launch, the U.S. Forest Service was already working in partnership with conservation groups to purchase thousands of acres bordering the National Forest. The goal was to connect habitats by easing the checkerboard effect of private-land ownership, including plots around Snoqualmie Pass.

When the WSDOT and Forest Service began collaborating in 2009, "it wasn't easy at first—understanding where the other comes from," said Patty Garvey-Darda, a Forest Service biologist. "The mission of DOT is highways and roadways, and the mission of the Forest Service is recreation and wildlife. We had to figure out how to make it a win-win."

“Ecological connectivity is not just the large animals not getting killed on the roadways, it’s about connecting whole ecosystems.”

—Patty Garvey-Darda, *Forest Service biologist*



In Los Angeles’ Griffith Park, mountain lion P-22 lived in isolation for more than a decade. Photo by Steve Winter

The project soon went from a typical highway improvement to something much grander—and far more collaborative. The agencies came together to create a Mitigation Development Team that used survey data on the location of frequent collisions to inform where wildlife crossings should go.

To better understand the kind of structure for a given location, the team studied a series of successful crossings in Canada’s Banff National Park. The agencies found that “grizzly bears, deer, and elk tend to use overpasses, while black bears and mountain lions use underpasses more frequently,” said Brian White, an administrator with WSDOT. The teams then designed roadside fencing to direct animals toward the corridors.

After a crossing is built, it can often take years for different species to start using it. After phase one’s completion at Snoqualmie Pass in 2019, for example, one

cougar was detected the following year, but in 2023 there were five. “For context, there are likely only a handful of cougars whose home ranges overlap with the project area due to territoriality,” said White.

The remote cameras allow biologists like Norman, from the WSDOT, to monitor these larger animals, but are ineffective in tracking “low-mobility species” such as amphibians and small mammals. These crossings require in-person surveying, a resource made possible through partnership with Central Washington University, whereby students from the school’s Department of Biological Sciences monitor animals as part of their coursework.

The monitoring teams have since tracked everything from coastal giant salamanders to hamster-like pikas. “Ecological connectivity is not just the large animals not getting killed on the roadways, it’s about connecting whole ecosystems,” said Garvey-Darda.

I-90’s overpass wildlife crossings recreate the surrounding environment. Photo by Washington State Department of Transportation





A student from Central Washington University participating in the project's surveying program. Photo by Washington State Department of Transportation

In the United States, more than one million wildlife-vehicle collisions every year cause \$8 billion in property damage and at least 200 human deaths, according to a federal study. The same report identified 21 threatened or endangered species, including California's bighorn sheep and the Florida panther, for which road accidents are the primary cause of death.

Local and state agencies have long prioritized traveler safety, often installing fencing or signage at high-impact zones. But in recent years, these entities have increasingly signed on to what the Forest Service has said all along: protecting wildlife on either side of a highway isn't enough. "Habitat connectivity is essential to biodiversity," said Garvey-Darda. Roads cut off natural pathways to food, water, shelter—and potential mates.

The federal government took note in 2021, when the Biden administration launched a grant program, as part

of the the Infrastructure Investment and Jobs Act, that included \$350 million to fund crossings. From increasing connectivity for Colorado's largest bighorn sheep herd to the recent completion of Florida's first wildlife overpass, the program kickstarted projects across the country. According to CBS News, there are around 1,500 structures in the United States as of 2024.

It's also resulted in more scientific research into the viability of structures. "It's incredibly place-based because we are reintroducing or continuing the natural world where we've erased it," says Renee Callahan, the executive director of ARC Solutions, which studies, designs, and constructs wildlife-crossing structures. According to ARC, when properly sited and designed, crossings with fencing can reduce collisions by up to 90 percent.



“ [Building wildlife crossings is] incredibly place-based because we are reintroducing or continuing the natural world where we've erased it.”

— Renee Callahan, executive director

of ARC Solutions

Callahan is part of a large team currently at work on what will soon be the largest wildlife corridor in the world, connecting the Santa Monica Mountains to Simi Hills, just north of Los Angeles. When the Wallis Annenberg Wildlife Crossing is completed in 2026, it will span 10 lanes across Route 101, one of the busiest freeways in the country.

As one of the few crossings of its scale located in an urban environment, Callahan says the design has unique challenges, such as harsh grading, utility infrastructure, and severe sound and light pollution.

Like Washington's I-90 crossings, the Annenberg will serve a variety of species: "everything from monarch butterflies to, most crucially, mountain lions," said Beth



The key to ensuring wildlife use overpasses is directing them with roadside fencing. Photo by Washington State Department of Transportation

Pratt, the California Regional Executive Director for the National Wildlife Federation, which spearheaded the project's campaign.

According to Pratt, the species is at threat of going extinct within the next 50 years if their habitat is not reconnected. In 2020, biologists started noticing signs of inbreeding in cougars residing in the Santa Monica Mountains, which they ascribed to isolation caused by the 101.

The plight was personified in P-22, the cougar that gained celebrity after traveling from the Santa Monica Mountains, across the 101, into Los Angeles' Griffith Park, where he lived alone for over a decade. Ultimately, P-22 was struck by a car, found to have long-term health problems, and euthanized in 2022.

His death sparked an outpouring of grief and calls to give animals more freedom to move. "Crossings bring people

together," said Pratt. "There are very few people who don't support it—in a time when we don't agree on much, this is one thing most of us agree on."

Become a community scientist by reporting roadkill sightings to your state's Department of Fish & Wildlife. Your observations could help inform the locations of future wildlife corridors.



Andrea Richards writes about cultural history, forgotten philosophical systems, and life in Los Angeles for a variety of publications, including *Independent Weekly* and the *Los Angeles Times*.