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# Animal Overpasses, Tunnels Offering Roadkill Remedy

*Cameron Walker*  
*For National Geographic News*  
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It's one of the first rules learned in kindergarten: Hold hands and look both ways before crossing the street. But while stoplights and crosswalks can help people get safely to the other side, animals may need a bit more assistance.

Now special "ecopassages" are helping wildlife reach the other side of the road, giving them a better chance at finding food, meeting mates, and completing migrations.

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A black bear explores a looking overpass that sti highway in Canada's Banff Park in June 2003. Acrc America, "ecopassages"- and tunnels built to help cross roads—are helping v avoid automobile collision room habitat that bisected l

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According to the Federal Highway Administration, millions of animals are killed each year on U.S. roads. Roadkill has knocked an endangered cat, the ocelot, down to about 80 individuals in the U.S. The number one predator of moose in Kenai Fjords National Park, Alaska, is the car.

Along with animals, approximately 200 people each year die as a result of car-wildlife collisions.

Scientists and highway planners are now working to help get wildlife *and* motorists to their destinations. From salamander tunnels in Massachusetts to cougar corridors in southern California, the ecopassages that run under and above roads are allowing animals to cross roads and highways safely.

"These ecopassages can be extremely useful, so that wildlife can avoid human conflicts," said Jodi Hilty of the U.S.-based Wildlife Conservation Society. Animals that migrate can also use make use of these passages when busy roads interrupt the animals' routes, she said. Hilty has studied ecopassages in California's oak woodlands.

**Perils of Isolation**

For large animals with extensive home ranges, such as mountain lions, these wildlife corridors are essential to keeping the animals' territory large and their gene pools flowing.

"If a mountain lion population in even the largest of southern California's mountain ranges is isolated, it's a matter of a few decades before they disappear," said Paul Beier, a conservation ecologist at Northern Arizona University in Flagstaff.

Beier, who has studied southern California's mountain lions since 1988, has tracked the big cats with radio collars to see what their travels are like.

One of the lions he was watching, called M6, was exploring the south side of the Riverside Freeway east of Anaheim.

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Then, Beier found it on the other side of the freeway and found the mountain lion's tracks in both sides of the Coal Canyon tunnel under the freeway. "It was one of the most exciting days in my field research," Beier said.

As a result, the underpass has been decommissioned and restored to a more natural state, so that mountain lions and other animals can use it to get across the eight-lane highway. More recently, U.S. Geological Survey researchers have documented bobcats and coyotes using underpasses in the Riverside, California, area.

Now Beier and the South Coast Wildlands Project, an Idyllwild, California-based organization focused on keeping wilderness areas connected, have proposed 15 linkages of currently existing habitat in crowded southern California. The group is currently working on gaining protection for the lands and developing corridors that suit species from big cats to tiny voles.

Similar passages in Florida have been put in for the endangered panther. Along Alligator Alley—a stretch of interstate between Naples and Fort Lauderdale—36 tunnels have been installed. Also, a chain-link fence helps prevent animals from dashing across the highway.

### **Salamander Crossings**

Big animals aren't the only ones in need of highway safety. One of the first ecopassage systems in the United States was a pair of amphibian tunnels created in Massachusetts in 1987.

These narrow tunnels allowed the endangered spotted salamanders to move to wetland breeding sites from upland habitat. Their route had been cut off by a two-lane road.

Other unique passages allow humans and wildlife to cross major freeways. In Florida's Marion County, Interstate 75 cuts right through a state-long swath of greenway that's habitat for bobcats, opossums, and armadillos. The area is also a prime recreation area for equestrians and hikers.

In 2000 the state built a 53-foot-wide (16-meter-wide) overpass bridging the six-lane highway. Lined with native oaks, pines, and saw palmettos, the overpass looks like an extension of the natural landscape.

A trail runs down the middle of the land bridge, so that people can use the crossing during the day. Wildlife generally take their turns at night.

Planners wanted to make both people and wildlife feel as if they were still in the greenway, Mariano Berrios said. Berrios was the project manager for the overpass for the Florida Department of Transportation.

Recently, Berrios received a surprise package in the mail: a photo of a bobcat taken by the overpass remote-sensing cameras.

"It's very good news, because we know they're finding the crossing," he said.

### **Canadian Corridors**

One of the most extensive—and successful—ecopassage programs in North America may be in Canada's Banff National Park.

The Trans-Canada Highway, which may carry 25,000-plus vehicles each day during the busy summer, runs east and west through the national park's 2,564 square miles (6,640 square kilometers).

In the early 1980s there were about a hundred collisions between elk and vehicles each year, said Tony Clevenger, a wildlife biologist at Montana State University's Western Transportation Institute.

"It's the only national park in North America that has a major freeway running through it," he said. "Imagine the San Diego Freeway running through Yosemite."

Starting in the mid-1980s Parks Canada began installing 8-

foot-high (2.4-meter-high) fences on both sides of the expanded highway. They then constructed 22 underpasses and two 1.5-million-Canadian-dollar, 164-foot-wide (50-meter-wide) overpasses for wildlife.

According to the park service, these changes resulted in a 96 percent decrease in mortality for the parks ungulates, or hooved animals.

Since 1996 Clevenger has been studying the wildlife that uses these passages. Using motion-sensing cameras and track pads (special areas that capture animal footprints), Clevenger and his crew watched to see if different species use different types of crossings.

Grizzly bears, elk, moose, wolves, and deer tended to cross on the overpasses, preferring these wide open-air structures.

But animals that spend most of their time in a forest environment, like black bears and cougars, headed to the darker, more constricted tunnels running beneath the highway. "They're used to having a lot of cover," Clevenger said.

Now Clevenger's work is being used to design a new wildlife-crossing project along an additional 19-mile (30-kilometer) stretch of highway. The project is scheduled to be completed within three years.

The grizzly bear population is so low that a few adult females killed on the road could really affect the species's numbers in the future. As a result, these passages can make a big difference for wildlife, Clevenger said. But animals should be given time to adapt to crossing on man-made structures, he added.

"The first year after construction [in Banff], only a black bear and a cougar used the passages, just one time each," Clevenger said. But now animals from elk to weasel-like martens are zipping above and below the road with greater ease—a total of more than 50,000 crossings in nearly eight years of research. One of Clevenger's research assistants was

even caught on camera hiding behind a mound while a grizzly lumbered across the overpass and strolled safely away from the highway.



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