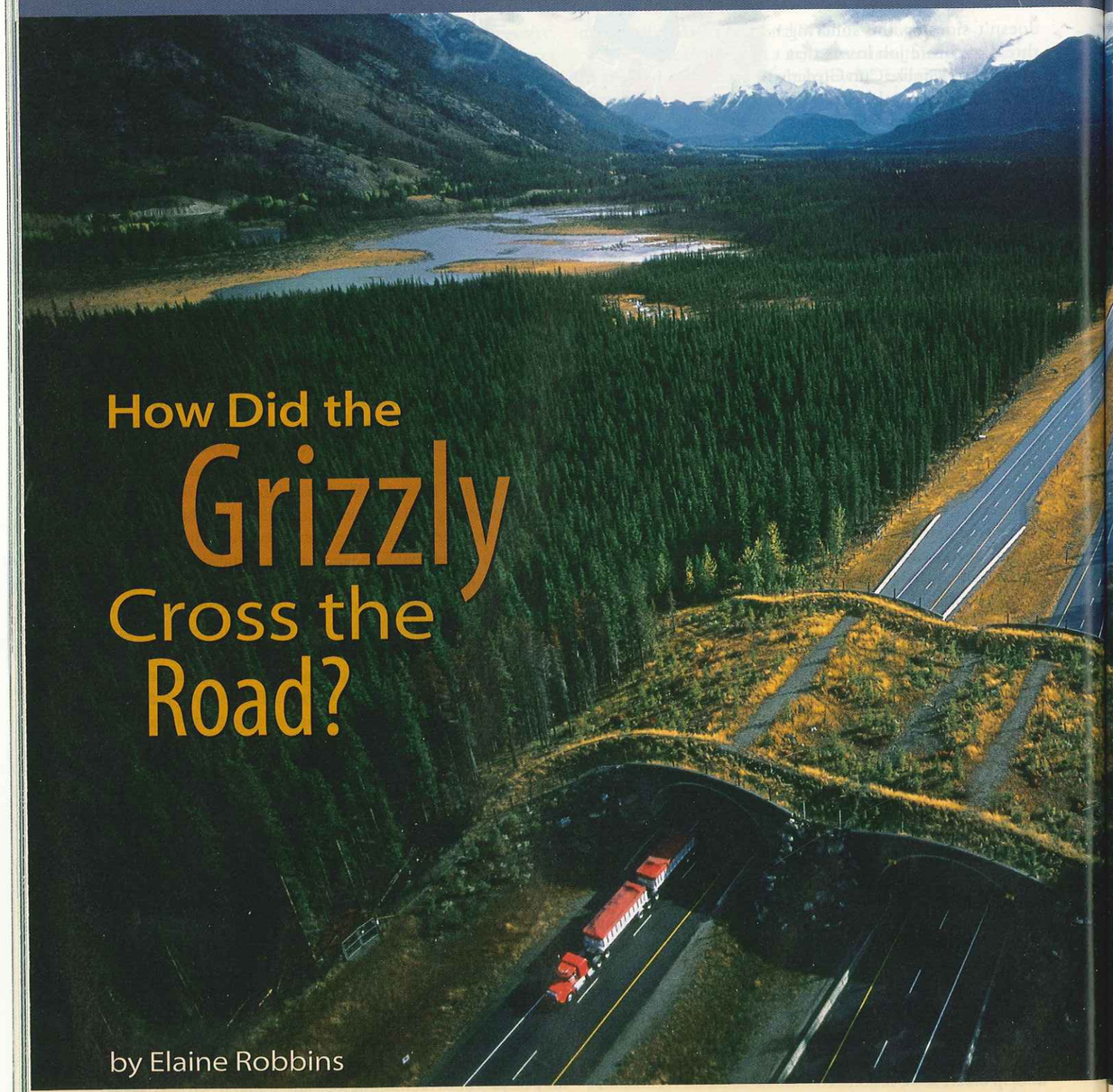
How Did the Grizzly Cross the Road?



by Elaine Robbins

A growing network of bridges, underpasses, and fencing is helping animals safely traverse millions of miles of asphalt.

ON A SULTRY AUTUMN NIGHT, PANTHER NUMBER 60, an eight-year-old male, stalked through a forest of pine trees and cabbage palms until he was stopped cold by a chain-link fence. Moving silently out of the southwest Florida woods, he followed the fence to a road. The panther cautiously approached the interstate, where vehicles whizzed down the straightaway at speeds of 70 miles per hour and up. Guided by the fence to a dirt-floor culvert, he crept under the four lanes of Alligator Alley, a section of road cut through one of the biggest wilderness areas in the state. Emerging from beneath the highway, he loped across an open, shrubby landscape and into the shelter of the Fakahatchee Strand preserve.

JOEL SARTORE

INSET: JESS R. LEE

Panther 60's trouble-free trip was a small victory for a species on the brink of extinction. With just 70 to 100 cats left, the Florida panther is one of the most endangered animals on the planet, and collisions with cars are its number-two cause of mortality (after death by other panthers). When work began in the late 1980s to widen Alligator Alley into I-75, the area's main interstate, Florida invested $20 million to build 36 wildlife crossings and other improvements. "We knew that we needed to do something for the panther," says Gary Evink, a former ecologist for the Florida Department of Transportation who worked on the panther recovery plan. "And we had an environmentally sensitive administration in Florida at that time." Aiding black bears, white-tailed deer, otters, bobcats, and alligators, as well as panthers, the plan created one of the first and most extensive systems of critter crossings in the United States. Although the big cats are still being killed on nearby state and county roads, none has died on I-75 since the structures were built.

Unnoticed by the average motorist, a growing nationwide network of crossings like those in Alligator Alley are providing safe passage for animals, from the largest predators to the smallest amphibians. With Florida leading the way, planners and biologists in Massachusetts, Montana, California, Washington, and other states have begun working together to create wildlife-friendly roads. This initiative got a fiscal boost from the 1998 Transportation Equity Act, which included $3 billion for wildlife crossings, bike trails, and other road-related amenities. In California's Mojave Desert, the threatened desert tortoise now uses modified storm-drain culverts to cross under State Highway 58. Near Amherst, Massachusetts, spotted salamanders crawl through small,

Grizzly bears prefer large open pathways like this overpass, one of two near Canmore, Alberta, that reconnect critical routes severed by the Trans-Canada Highway.

damp tunnels each spring to breed in wetland ponds separated from their year-round habitat by a two-lane road. In Montana's Glacier National Park, mountain goats go below U.S. 2 to get to their favorite salt lick along the Flathead River—and avoid the fate that so many other animals meet on the 4 million miles of roads now spiderwebbing the country.

OVER THE LAST THREE DECADES, ROADKILL HAS OVERTAKEN hunting as the number one human-induced cause of direct death to wild animals on land: An estimated one million vertebrates perish on our roads each day, according to the Humane Society of the United States. Collisions with cars are the primary cause of mortality for the threatened Florida black bear, as well as the 100 ocelots in south Texas, the country's last remaining population.

Roads have less obvious lethal effects, too: They attract subdivisions and sprawl to rural areas, creating formidable obstacles for wildlife. Using radio telemetry, biologists working near Jackson, Wyoming, found that a local herd of pronghorn had to cross 47 fences to get to its winter range in the Green River Basin. Along the way, it also had to traverse several "bottleneck" areas, where in some cases housing developments had reduced passageways used by thousands of mule deer and pronghorn to as little as 100 yards across. Broad swaths of asphalt also fragment wildlife habitat and block migration corridors—and will eventually threaten populations isolated from food sources and potential mates. Especially vulnerable are large, far-ranging carnivores like grizzly bears, mountain lions, panthers, wolverines, and lynx—animals that may travel 100 miles in just a few days.

Such creatures can hardly avoid encounters with vehicles. According to Harvard ecologist Richard T. T. Forman, coauthor of *Road Ecology,* there are few places left in the contiguous United States more than 20 miles from a road. On average, vehicles zoom down highways every four seconds, creating a deadly barrier. "In the animal world, things don't move at 70 or 80 miles an hour, so they're not going to comprehend how fast something is coming at them," says Darrell Land, a panther biologist for the Florida Fish and Wildlife Conservation Commission. "I've never seen a panther get hit, but I've seen a bear get hit. The bear pointed his nose in the direction he was going and just hauled butt. He ran faster when he heard a car, and ended up right in front of the wheels."

Smaller, slow-moving animals like frogs, turtles, snakes, and salamanders are also killed as they cross roads to breed, lay eggs, or find a new pond. A recent study by biologists at the State University of New York at Syracuse found that half of the 55 turtle species native to the United States are in decline, and road mortality is a major factor. Even animals that never see a road are threatened: Decades of poorly designed highway river crossings block fish migrations by creating steep drop-offs, causing swift or insufficient stream flows, or eliminating rest pools. Traditionally, biologists have focused on four major threats to wild salmon—harvest, hatcheries, hydropower, and habitat. But after studying the effects of roads in the Pacific Northwest, Bill Ruediger, a U.S. Forest Service ecologist, proposed adding a fifth "H": highways.

In the search for ways to offer animals safe passage, many

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Two thousand bison share Yellowstone with the one million vehicles that pass through the park each year.

LEFT: TONI & PAT LEESON (CAPTIVE)
RIGHT: JOEL SARTORE

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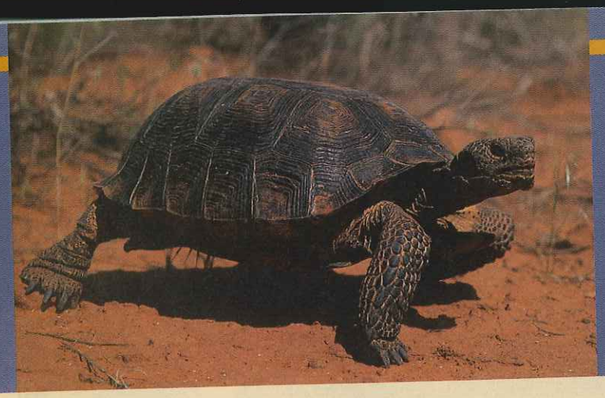
Florida has reduced speed limits and built wildlife crossings to help the panther and key deer coexist with the state's growing human population.

look to Canada, which embarked two decades ago on a radical road redesign in Banff National Park along a stretch of highway once so infamous for its roadkill problem that park wardens dubbed it "the Meatmaker." Some 15,000 cars and trucks traveling on Canada's main east-west artery pass through the park each day, risking collisions with grizzly bears, black bears, deer, elk, moose, wolves, coyotes, and bighorn sheep. When the federal government began expanding the Trans-Canada Highway in the 1980s, public outcry prompted the building of 22 underpasses, 2 overpasses, and 11 miles of highway fencing for wildlife. Two decades and $80 million later, the project has reduced roadkill by 80 percent. (Deaths to hoofed animals like deer and elk have been reduced by up to 96 percent, but black bears continue to climb the fence and coyotes to dig under it.)

At Banff and elsewhere, experts are studying which kinds of crossings animals will use and which they won't. Anthony Clevenger, a research scientist working in Banff, found that grizzly bears, wolves, elk, and deer gravitate toward large open pathways, while black bears and mountain lions usually opt for narrower underpasses. Many large animals need an unobstructed view of habitat on the other side before they'll enter a tunnel or step onto a bridge. Location, too, is a key factor. Successful projects begin with studies that use tracking, cameras, and roadkill data to determine where animals traditionally prefer to cross.

South of the border, in western Montana,



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U.S. 93 is ripe for a similar transformation. A well-trafficked artery between Missoula and Glacier National Park, it traverses the Flathead Indian Reservation and a picturesque landscape of mountains and rolling valleys that are home to white-tailed deer, painted turtles, mountain lions, and elk. The lure of the highway's beauty, however, comes at a cost: Roadkill takes a high toll here.

In the early '90s, U.S. 93 was slated to be expanded from two lanes to four, the standard highway-department response to traffic congestion. But state and federal authorities ran into a roadblock they didn't anticipate: The Confederated Salish and Kootenai Tribes of the Flathead Nation place a higher priority on wildlife than on roads. "A lot of tribal members are active hunters and fishermen, and game is a treaty-protected resource," explains tribal biologist Dale Becker. "Big-game species provide important subsistence for a lot of families. And the grizzly bear and gray wolf are revered as part of our culture."

The tribe filed suit, and brought the proposed project to a halt. After years of debate, in December 2000 the government and the tribes signed an unprecedented agreement to work on a design "premised on the idea that the road is a visitor and that it should respond to and be respectful of the land and the Spirit of Place."

When completed in 2007, the $125 million highway project will have a record-setting 42 wildlife crossings and 15 miles of fencing. While parts of the road will be expanded to four lanes, it will be limited to two in environmentally sensitive areas. "I think Highway 93 is a beautiful template for how all our highways should be built in the United States," says Ruediger of the Forest Service. In places the road will meander and curve to draw attention to the landscape. Near the community of Evaro, a 150-foot-wide wildlife bridge landscaped with Douglas firs and ponderosa pines will allow animals to cross the highway safely. This passageway preserves one of the few remaining routes between grizzly populations in the Glacier area and the Bitterroot Range in the west, a crucial expanse of habitat for the endangered bear.

Across the country, biologists and transportation experts are realizing that it's not enough just to build wildlife crossings—the animals also need somewhere to cross to. "We need to manage adjacent lands appropriately," says Ruediger. "It means that you don't build a Wal-Mart on the other side of a highway crossing—or a condominium or a high-density bike path." It also means protecting and restoring the nearby landscapes fragmented by roads, and safeguarding them from future development. "In the case of large carnivores, we need to reestablish habitat connections across state and even international boundaries if healthy populations are going to have a chance of survival in the future," says Leanne Klyza Linck, executive director of the Wildlands Project, an organization working to reconnect North America's wildest habitat.

Signs of hope sometimes appear in the most unexpected places. Earlier this year outside Los Angeles, for the first time in California's history, a highway interchange was decommissioned and transformed into a wildlife crossing—restoring the last link between the Chino Hills and the Santa Ana Mountains for bobcats, coyotes, and mountain lions. First the on- and off-ramps of the Coal Canyon exit of the Riverside Freeway were bulldozed. Then highway crews removed the asphalt and took down the roadside lighting. They restored a natural dirt path, redirected a stream, and installed a wildlife-proof fence along the highway. In the region that future archaeologists may someday view as one vast monument to the freeway, animals will again follow their ancient travel routes through the canyon and into the mountains, leaving the dangers of traffic far behind. ■

ON THE WEB Much of the current federal funding for wildlife crossings was included in the 1998 transportation spending bill, which is up for reauthorization this year. The Sierra Club is lobbying Congress to fund more such projects. For details, check out our "Transportation Reform Policy Guide" at *www.sierraclub.org/sprawl/tea3*. To learn more about reducing the impact of roads—and to take action on highway projects near you—visit the Defenders of Wildlife "Habitat and Highways Campaign" site at *www.defenders.org/habitat/highways*. For details on wildlife crossings and research projects around the country, see the Department of Transportation's "Critter Crossings" Web site at *www.fhwa.dot.gov/environment/wildlifecrossings*.

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