



Home on the Range: A Corridor for Wildlife

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Florian S. Wenz signs of the Wild

The Rockies are among the last refuges of animals like the bighorn sheep.

By CORNELIA DEAN
Published: May 23, 2006

LAKE LOUISE, Alberta — One day in April, a zoologist named Paul Paquet found himself at the tiny railroad station here, in the middle of Banff National Park.

Multimedia



Graphic: Yellowstone to Yukon

He surveyed his surroundings and grimaced. "This park," he said. "It's a national disgrace."

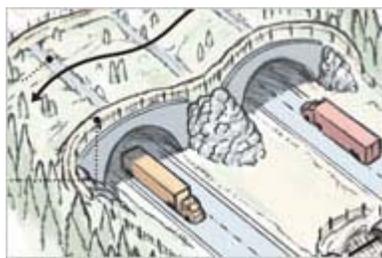
Sure it's beautiful, he said, and, yes, it is one of the last places where grizzly bears can roam and wolves can hunt the elk and bighorn sheep that are their prey.



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Courtesy of Western Transportation Institute, Montana State University

A grizzly bear crossing a highway on an overpass built for wildlife.

Dr. Paquet, who works for the World Wildlife Fund and has faculty appointments at several Canadian universities, is part of a collaborative group of researchers, conservationists, government officials and others hoping to improve things — not by removing roads or railways but by mitigating their effects.

They want to create a sustainable environment for wildlife from the Yukon to Yellowstone, even as people move ever deeper into the Rocky Mountains of the United States and Canada.

Participants in the collaboration, called Y2Y, have designed and monitored overpasses and underpasses to help animals cross highways safely. They have negotiated limits on access to golf courses and ski slopes so animals can traverse them. They have encouraged the creation of wildlife corridors around or even across towns.

Their goal is not just a wolf pack surviving here and there, or a few scattered grizzly bears or elk or bighorn sheep, but a landscape in which animals can thrive, roaming and reproducing widely and avoiding the genetic perils of small populations trapped in shrinking habitats.

When the researchers write up their findings for scientific journals, they call this goal "functional connectivity," said Michael Proctor, a zoologist and postdoctoral researcher at the University of Alberta. He calls it "sex across the highway."

Around the world, conservationists are embarking on similar efforts. In India, wildlife experts are trying to establish corridors linking fragments of tiger habitat, according to the National Wildlife Federation. Similar projects are under way in Costa Rica and Australia.

Researchers at the University of Florida, working in an experimental landscape in South Carolina, reported last year that corridors established for wildlife can also help the survival of plants.

But Y2Y is perhaps the largest effort.

Dr. Proctor, Dr. Paquet and other scientists were at the Lake

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Louise station because the Canadian Pacific rail line that carries grain to ports on the west coast is a major killing ground for elk, bears and other animals drawn to the tracks by grain that spills from the hoppers

There are arguments over who is responsible for the problem, said Mike Gibeau, as he bent to gather lentils, barley and other grain lying in small piles between the tracks. Dr. Gibeau, who works for Parks Canada, the agency that runs the national parks, is working with other researchers for ways to reduce the carnage.

Here in Lake Louise, the tracks have been fenced off with metal mesh. Where the fence opens at the station, the rail bed has been fitted with a mat of six-inch metal spikes. Trains can pass over the spikes but, in theory, animals cannot.

"We're going to see if it works," Dr. Gibeau said, and if it does it will be adopted elsewhere.

Mesh fencing has also been installed along stretches of the Trans-Canada Highway as it slices across the park, and as the road is widened additional fencing will be added. The effort is motivated not so much by concern for animals, the researchers note, but to avoid injury to the drivers of cars and trucks that would otherwise hit them. In fenced areas, hardly any animals die on the road, but they are trapped on one side or the other.

A project a few miles south of Banff aims to correct that. There, an overpass about 50 yards wide over four lanes of traffic was built a few years ago. Researchers supported by Y2Y are studying what animals are using it and when, in hopes of installing similar crossovers elsewhere.

Approached from the woods, the crossover resembles any other sloping hill, covered with brushy grass, shrubs, saplings and even a clump or two of pussy willow.

Earthen berms on either side hide the road and mute the noise of the tens of thousands of cars that pass by daily, winter and summer.

Animals have worn a trail along one edge and, at the top, leave prints on a cleared stretch of dirt, a so-called track pad, monitored by motion-sensitive cameras with night-vision lenses.

The New York Times

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Wayne Hallstrom, a research associate with Parks Canada, said he and his colleagues checked the pad twice a week for signs of animal crossings. In the last few years, he said, they have counted tens of thousands of crossings by wolves, bears, cougars, elk, deer and other animals. Each year the numbers rise, presumably because more animals are learning where the crossings are.

He said researchers planned next to install a bit of barbed wire in hopes of snagging bits of fur with hair follicles that will yield DNA for testing. They want to know not just how many times bears cross the road, say, but whether there are many bears or just a few bears making multiple trips.

"I think it's changed the movement of the elk," Mr. Hallstrom offered, "but it's unstudied so far."

The overpass project is run by Anthony P. Clevenger, a scientist supported by Y2Y who works with the Western Transportation Institute at Montana State University at Bozeman. Dr. Clevenger is working on installing dozens of wildlife crossings on Route 93 in Montana, south of Flathead Lake.

"We know that some species — grizzly bears, wolves, elk and deer, also moose, prefer large structures," Dr. Clevenger said. "Cougars and black bears prefer the opposite — very constricted structures with lots of cover." Sometimes a pack of wolves will approach a crossing, but if only some are willing to chance it the pack as a whole may not cross. The scientists are trying to figure out a crossing design that will encourage packs to move en masse.

Dr. Proctor said there was also talk of modifying avalanche sheds that carry cascading snow across mountain highways so animals can use them as crossovers. Y2Y began in the mid-1990's when some Canadian parks officials and conservationists approached the Kendall

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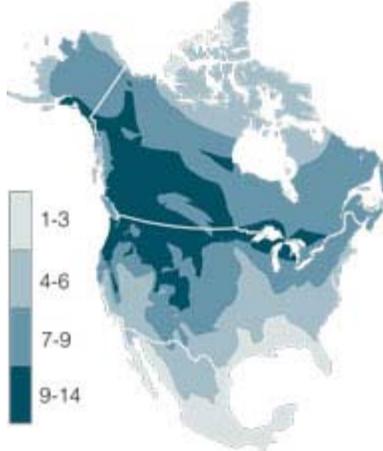
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The New York Times

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Graphic: Yellowstone to Yukon

Foundation, an environmental grant-maker based in Boston. "They said they had this idea of protecting the wild heart of North America from Yellowstone to Yukon," said Gary Tabor, who was at the foundation at the time and later became the first director of Y2Y.

The protection offered by national, state and provincial parks was not enough to protect their bears and elk and wolves, Dr. Tabor said they told him. "They said, 'You have to protect larger landscapes to protect such species.' "

Eventually, Dr. Tabor said, the foundation convened meetings with academic researchers, conservation groups, government agencies and "key stakeholders," like business leaders and American Indian representatives. They discussed what the Y2Y boundaries should be, settling on a region of about 465,000 square miles, most at elevations of 3,500 feet or higher, encircled at lower elevations by prairie grasslands.

They also talked about what kind of scientific work the organization should finance. Today, Y2Y receives grants from foundations and itself supports the work of established scientists, graduate students and others with an annual budget of about \$2 million. (An exhibition on the initiative will open July 15 at the American Museum of Natural History, in New York, where it will run until January.)

Initially, Dr. Tabor said, property rights organizations and other groups accused Y2Y participants of seeking to drive people out of the Rockies. "That was never the intention," said Dr. Tabor, who left Y2Y in April to head the North America program for the Wildlife Conservation Society.

"The intention was, We have to have a regime where people and wildlife can live compatibly." Although parks and other protected areas form the core of Y2Y, "we work community by community," he said.

"It's not just public lands; it's about private lands in between," he added.

When people objected that restrictions would harm the region's economy, Y2Y pointed to a study showing that a pristine environment could draw people who come to the area because of its ecological integrity, the so-called amenity migrants, said Rob Buffler, who replaced Dr. Tabor as Y2Y's chief.

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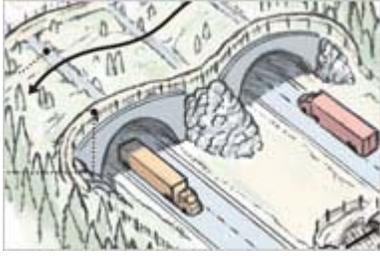
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Graphic: Guiding Wildlife Past Danger

One of the towns drawing them is Canmore, not only because of its beautiful location in the Bow River Valley, but also because it is within commuting distance of Calgary, thriving in Alberta's oil and gas boom, and Banff.

The growing town, which the researchers call "the Canmore plug," has forced animals that once traveled along the river up the mountain slopes, Dr. Gibeau said.

To accommodate them, he said, some ski resorts and golf courses are limiting access to people.

"Grizzly bears come down here to walk down the road in the middle of the night," he said. In April, Parks Canada appealed to drivers to use one major road, the Bow Valley Parkway, only from 9 a.m. to 6 p.m. until June 25, to create traffic-free periods for wildlife on the move in spring.

But the human species does not always embrace all of Y2Y's goals. Hikers camp in wildlife underpasses. Mountain bikers drive animals away from an overpass built over a hydroelectric plant canal, Dr. Gibeau said, and they ruin hillside vegetation by riding their brakes too hard on the way down.

Such problems sometimes leave the researchers wondering whether their efforts do any good. Dr. Paquet said it was troubling to think that he might simply be "monitoring the slow demise" of the ecosystem.

Dr. Gibeau carries in his wallet a much-folded piece of paper with words the naturalist Aldo Leopold wrote more than 30 years ago: "One of the penalties of an ecological education is that one lives alone in a world of wounds," Leopold wrote. "Much of the damage inflicted on land is quite invisible to laymen. An ecologist must either harden his shell and make believe that the consequences of science are none of his business, or he must be the doctor who sees the marks of death in a community that believes itself well — and does not want to be told otherwise."

Dr. Gibeau has this "ecological education," and he knows Leopold was right.

"People who come here are just so awestruck by the scenery that they cannot understand its ecological problems" he said. "They say, 'How can there be trouble here?' But once you peel back the veneer, this place is like most other places, a human-dominated system."



Video: A Corridor for Wildlife

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