



After the Fact | [States of Innovation—Creating Corridors for Wildlife](#)

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TRANSCRIPT

Sounds of hooves and animals moving, other serene nature

Dan LeDuc, host: For thousands of years this was the natural sound of America's West, breezes blowing and animals migrating, finding food and traversing hundreds sometimes thousands of miles ... today, those sounds are still around but they can be drowned out. ...

Sounds of a highway, trucks, cars, maybe one horn

Matt Skroch, Pew's project director of U.S. public lands and rivers conservation: Roads and highways, in particular, are a major obstacle to wildlife migration. It turns out that what we humans have built to efficiently get from point A to point B has the opposite effect on wildlife. Busy highways, increasingly common in the West, either stop animals altogether from being able to cross the road, stranding them in a small patch of habitat that they don't want to be in. Or animals try to cross the road and essentially roll the dice with motorists zooming by at 70 miles an hour. And, you can imagine how that story doesn't end well for the animal or the driver. For the Pew Charitable Trusts, I'm Dan LeDuc, and thanks for joining us for the fifth episode of our States of Innovation season here at "After the Fact." You just heard from Matt Skroch (pronounced SKRAW), who leads Pew's efforts to develop wildlife corridors in America's West—actually, those corridors have always been there, animals have always naturally followed them. Today the work is finding ways to keep animals moving on routes that are bisected by roads and highways.

That matters because it saves lives and dollars. Which takes us to our data point for this episode: 8 billion dollars—that's the cost from 1 million wildlife vehicle collisions that occur each year in this country.

Here's Matt Skroch again to tell us more about the solutions some states are beginning to use to prevent these collisions.

Transition music



Matt Skroch: Our story really about conserving the West's far-ranging emblematic wildlife really starts with the advent of a small little computer chip, and GPS transponder that researchers just recently began attaching to animals, to see where they go, and when.

Dan LeDuc: And, so, this new technology, in addition to teaching us about these herds, is also allowing us to do things about helping those herds move. Right? So, talk a little bit about what we're learning in that context.

Matt Skroch: First, let me tell you a little bit about what a wildlife corridor, or migration corridor, is. It really is a linear strip of land, of varying width, that a group of animals uses to get from point A to point B over the course of a year. Migration corridors in particular are used seasonally. They're used once in the spring, and then again in the fall, as a herd of animals moves from their winter habitat, at lower elevations, to their summer habitat, usually at higher elevations. And these wildlife corridors, they might be several miles wide, or maybe several hundred yards wide, depending on the terrain and other landscape features. And here in the American West, we're discovering that these corridors can be hundreds of miles long, in some cases spanning mountains and valleys and crossing numerous highways and fences.

So these GPS collars that are often safely affixed around the neck of animals have really begun to answer questions about how and where animals move across landscapes in stunning detail, telling us fascinating stories about ancient pathways, or migration corridors that have been passed down from generation to generation, in order for these animals to survive what nature deals out every year. And the GPS collar essentially talks to a satellite, in space, every hour, every two hours. So if you multiply that data stream that's collecting data on movement and location of animals, by say 40, or 50, or 100 animals that have collars on them, you start to amass a very large data set, that gives you a very fine-scale inference into how these animals are utilizing landscapes, in a spatial and a temporal sense.

Transition music

Dan LeDuc: Jodi Hilty is president and chief scientist of the Yellowstone to Yukon Conservation Initiative—and one of the first to write a book on the subject of corridor ecology, or wildlife corridors. We spoke with her about this incredible movement of animals across the Western landscape.

Dan LeDuc: So, to get us started, we should talk about what the Yellowstone to Yukon Conservation Initiative is.



Jodi Hilty, president and chief scientist at the Yellowstone to Yukon Conservation Initiative: Yes. Well, it was one of the very first large landscape conservation visions. We envision connecting and protecting the habitat from all the way down in Wyoming from Yellowstone National Park all the way to the Arctic Circle in the Yukon. And why would we pick this region? Because this place is the place that still has all of the large carnivores like grizzly bears and wolves and mountain lions and wolverines. And it also still has all of the hooved animals—doll sheep, caribou, moose elk, and so many more. It's the last best place to get this done and arguably the most intact mountain ecosystem in North America. Our job is to keep it that way.

Dan LeDuc: Tell us about these animals. What do these migrations look like?

Jodi Hilty: In the early 1990s in the Rocky Mountains that span Canada and the United States, there was this wolf named Pluie. And they put a collar on her just south of Banff National Park. And she took a 100,000 square kilometer jaunt.

She went across two countries, three states, two provinces, and, overall, 30 different jurisdictions.

And I think she and other animals during the early days of GPS collars really taught us a lot, that animals moved a lot further than we ever knew. Today, we're really seeing these incredible movements. And they show us that parks are really important. Pluie went through several parks. But they're not necessarily adequate for animals that need to roam at that scale.

And we see this with animal migrations. For example, two of the longest migrations of hooved animals are pronghorn and deer, mule deer, in Wyoming. These animals are moving hundreds of miles. And they're migrating. And they're following that snow line. And as the grass and herbs just start to green out there, they're richest, the best for these animals. And, so, they follow it up. And it's worth migrating to get that extra nutrients. And then, of course, in the winter, they come back down.

Dan LeDuc: As researchers learned more about how animals, like Pluie, move across the land, they have been able to create more innovative solutions that protect people and wildlife. Back to Matt Skroch for more on this.

Matt Skroch: We're finally well-equipped now to confidently install transportation infrastructure like bridges and underpasses in these collision hot spots for animals to use. Sometimes we can simply convert an existing culvert under a road, whereas other projects build pretty significant bridges designed specifically for wildlife to cross the highway or the road. And either way, our goal is to, first, get the animal off the roadway, and, second, to allow the animal to continue on their migration.



So, when they're done right, which is almost always the case now because of this better inference that we have through technology and science, we regularly see wildlife vehicle collisions decrease by 80% or 90% where interventions are deployed. And what I mean is where we build structures or fencing that guide animals to safe crossing areas, and they use that, keeping them off the roadway.

Dan LeDuc: How do we know where to put these structures, or culverts, and then how do we actually funnel the animal into them, and get them to use them?

Matt Skroch: There's two primary ways in which we can, with some precision, pinpoint these spots where we need to intervene. Those GPS collars, when they're affixed to animals, we know exactly where they are, every hour, maybe two hours, maybe three hours, and so over time among multiple animals, we have very good resolution of where they're crossing roads or highways.

Secondly, and unfortunately, we know where people are hitting animals, because we have carcasses on the side of the road. We have cleanup crews. We have ambulances going out to help people. Between those two things, we've got a really good sense of where the problem exists, and with that, we can then go in and say, OK, what makes the most sense from a design perspective here to solve the problem?

Sound of traffic on a highway

Dan LeDuc: These culverts, underpasses, and overpasses are key in curbing animal collisions—Jodi Hilty explains how they work.

Jodi Hilty: If they're really busy roads like Interstate 90, they might not be passable for some wildlife. So, for example, with grizzly bears, one research study said that a hundred cars per hour means that it's impossible for grizzly bears.

So if we want grizzly bears to connect on either side of a road that has more than a hundred cars in an hour, then we need to work with the Department of Transportation to ensure that wildlife can either go over the highway safely with overpasses or underneath the road with underpasses.

There are some not far from where I'm sitting right now outside of Banff. So, in Banff National Park, they have over 40 wildlife crossing structures. It's the most well-studied crossing system in the world and informs what's happening in the rest of the world.

We know lots of individual animals are using those overpasses. Some of them have breakfast on one side and lunch on the other. Some of them just use it once to migrate to go find a mate. There's all sorts of different uses of those. And we're finding that



females and males actually use different structure. And what's different about them from a standard bridge is that there's actually trees on them.

So, what they look like if you were standing on top of them is they have a berm of dirt on either side, on the edges, that allow the wildlife to go through the middle. And it's a little quieter and more secluded for those animals who might be sensitive to humans and to cars.

Dan LeDuc: Well, we're creating a version of nature over a highway, right? A dirt-covered bridge that has got trees and things on it. But how do we do—do they need steering to nudge them along in there? Or do they naturally take to it? Do we have to have fences that lead them there? How do you stop the young buck who just says, hey, I'm sprinting across the road, mom? And he takes off.

Jodi Hilty: Yeah, what we found is that fencing for overpasses and underpasses is really important because it actually directs the wildlife to the overpasses and keeps them safely off the road. So, for hooved animals, it keeps about 90% of them—or it decreases that about 90% of the collisions that would happen between these hooved animals like elk and moose and cars. So, it's keeping people safe and wildlife safe.

Transition music

Dan LeDuc: This doesn't just protect wildlife and humans; it also saves states real money—putting a big dent in that 8 billion dollars the nation spends on collisions each year. Here's Matt again.

Matt Skroch: In addition to the ecological benefits of providing safe passage for wildlife, and therefore making for healthier populations and herds, there's also a real economic benefit to humans. And a real safety benefit to humans as well. We know now that the average cost of hitting a mule deer costs a driver somewhere around \$8,200. And an elk, which is a larger, heavier animal, usually averages up to \$25,000 in costs associated with a collision with an elk. And a moose, which is even larger, can top 1,000 pounds or more, the damage can be pretty severe. And, obviously, injuries and sometimes human deaths as a result of those collisions. And we often spend around \$45,000 per collision with moose. And, so, in places where we see, in a very short space, 100 or more of these collisions in a year, that really adds up. And when we implement solutions that reduce those wildlife vehicle collisions, reduce the threat of injury or death, and improve safe passage for wildlife, fact is that these projects can pay for themselves, over a relatively short amount of time.

Dan LeDuc: Can you go through a couple of real-place examples for us that have been successful?



Matt Skroch: Wyoming has been a real leader, given the rich assemblage of large wildlife that roam that state. But I can think of almost every Western state, and give you an example of what they have done in the recent past, to address this issue. I can look at projects such as Colorado State Highway 9, which has a series of interventions that include two overpasses, and multiple underpasses, with associated fencing. And we've seen a decrease of 90% in wildlife-vehicle collisions there.

We also have huge projects in western Washington state, there is a billion-dollar project that is on its second or third phase now, where they have over the course of many miles, installed a number of different crossing structures for multiple different kinds of species. Not only limited to big-game species like elk, or mule deer, but also thinking about fish passage. And thinking about reptiles and amphibians that are also hampered by our transportation infrastructure development. And, so, it can really run the gamut.

Dan LeDuc: We're concentrating on the West because obviously these massive herds, that's where this happens, But what you're describing seems like it could translate to just about anywhere in the United States, where animals need to cross, and we can figure out appropriate paths for them.

Matt Skroch: That's right. So, in the Eastern U.S., the same issue applies in a slightly different context. And it really can depend on what species we're talking about, too. There has been some really innovative work that has gone into creating crossing structures for turtles, for salamanders, even for crabs in certain places. And they all look very different. And, so, there is with some ingenuity, with some creativity, the solution is there. And certainly with those smaller animals, you don't have the economic consideration relative to human injury, or actual collisions, but there is a real ecological benefit in installing some of these structures for species that might be imperiled, threatened, or endangered.

So, there is a strong policy opportunity right now because of that new science that has given us so much more information about how to do this right. We just want to make sure that we're connecting that science with the policy and making sure that that science is doing its best to inform a good approach.

Music transition

Dan LeDuc: Thanks for joining us. You can learn more about wildlife corridors at pewtrusts.org/afterthefact. Please tune in next week for the last episode in our States of Innovation season.



And we'd like to know the stories you want to hear. Go to pew.org/atfsurvey to take our listener survey. If you complete it before February 1, you can enter to win a \$50 Visa gift card. You can see the full official rules at the survey link.

Until next time, I'm Dan LeDuc and this is "After the Fact" from The Pew Charitable Trusts.