

What a meandering moose says about US wildlife protection efforts

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To prevent extinctions and protect habitats, the US has started building wildlife corridors around major roads and cities. A moose spotting is the latest sign that these efforts seem to be paying off

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By Lois Parshley



Moose are known to live across the northern US, but until recently, none had been spotted in south-western Washington state

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In the dim half-light of winter, a wildlife trail camera in Mount Rainier National Park in Washington state captured a surprising sight. Squinting, a curious viewer could just about discern the creature trudging through the snow: “Is that a MOOSE?” the park’s social media account asked incredulously.

The sighting on 8 December was the first moose documented in south-western Washington. It came just a few months after a state Department of Transportation video recording of a moose using a wildlife crossing east of Seattle, near steep Snoqualmie Pass on I-90, the state's longest freeway. Moose (*Alces alces*) are found across the northern US but are relatively new to Washington; they only arrived in the north-eastern part of the state in the 1920s. Researchers speculated that the moose may have used the crossing to move into new territory, perhaps the very same animal now exploring Mount Rainier.

Is that a MOOSE? Yes, it's a moose!!! This is the first recorded moose sighting @MountRainierNPS & southwestern Washington! Could this be same moose recently observed on the I-90 wildlife undercrossing at Resort Creek? Check out @WSDOT's video <https://t.co/LW446Gz0Fu> @WDFW -tc/pw [pic.twitter.com/TxkahARNbW](https://t.co/LW446Gz0Fu)

— MountRainierNPS (@MountRainierNPS) December 8, 2022

The idea of creating animal routes around human development has been around for some 70 years. Yet until recently, some conservationists were sceptical about how much difference these could make. In the past decade, largely thanks to advances in tracking technology, scientific consensus has grown that they reduce the number of animal-related crashes and effectively link critical habitats.

This, in turn, has helped to unlock funding, and wildlife corridors are now being created across major highways in the US. The California Department of Transportation, for example, recently announced construction of the world's largest wildlife bridge across 10 lanes of traffic in the Santa Monica mountains.

Today, many ecologists view them as an essential part of our efforts to stave off extinctions and help threatened species recover. As ecologist Patricia Cramer sees it, they are one of the most effective tools we've got.

Connecting habitats

The concept of wildlife corridors is fairly straightforward: animals need to move freely across the landscape. Some migrate to look for mates or relocate to warmer locales for the winter. When highways and railroads become barriers, these animals' habitats fragment, and their movement is impeded. They may lose access to habitats they need to survive the winter – or die trying.

This can have a significant impact not only for individuals, but for species' long-term chances of survival. Turtles, for example, lay eggs on dry land, but often need to cross a road to do so, says Cramer, who is founder of the Wildlife Connectivity Institute in Montana. Due to their nesting forays, so many female Florida cooter turtles die as roadkill the species' sex ratio has now skewed, leaving four males to every female.

Animals that are hemmed in by human development are also more likely to mate with nearby animals, producing less genetically diverse offspring. Both malnutrition and inbreeding make populations less resilient in the face of drought or other climatic changes.

Constructing artificial corridors can help animals more safely navigate human development. Overpass bridges, like the one in Snoqualmie Pass, aim to help large animals like pronghorn and bighorn – who prefer bigger, open structures – traverse roads. Underpasses, which can be as simple as a culvert or tunnel beneath the road, tend to appeal to cougars and black bears, which prefer structures with cover, as well as smaller creatures like amphibians. (Some animals may prefer one over the other, but even mule deer and elk will use culverts if the dimensions are tall and wide enough.)



A cougar is recorded using the underpass beneath highway US 97 in Washington state
Washington State Department of Transportation

The first bridge for animals was constructed in the 1950s in France – ironically to help hunters control deer. There have been a smattering of success stories for these corridors around the world since, notably along the Trans-Canada Highway, a road through Banff National Park once so notorious for animal collisions it earned the nickname “Meat Maker”. Yet wildlife crossings have been slow to take off in the US, in part because the cost of constructing them frequently runs into the millions.

Today, advances in technology have highlighted the need for such crossings, says Casey Stemler, a senior adviser for western states at the US Fish and Wildlife Service. “Years ago, we’d mark animals with collars for radio tracking and have to stand on a high point or listen from an airplane to try to hear the beeps,” he says. “Now, we can put satellite transmitters on animals and track them from an office in real time.”

This has enabled state and federal governments to develop maps showing exactly how animals are moving across the landscape, “changing our understanding of connectivity and migration corridors”. In Banff, for example, the highway restricted grizzly bears’ movement, dividing the population into smaller groups with low genetic diversity. After the crossing structures were built, the bears began to intermingle.

Using technology like trail cameras, the Washington Department of Transportation has documented more than 20,000 animals, including cougars, coyotes and bobcats, using the corridors along I-90 since their construction in 2015. They now serve as an important bridge between the north and south Cascade mountains, which run like a spine from southern Canada to northern California.

This success appears to be widely shared: A meta-analysis out of Utah State University examined 78 experiments, and found that corridors increase movement between habitats by around 50 per cent. New research last month found that these crossings may even benefit animals already living in protected locations. The study found that wildlife in isolated national parks and refuges often need larger habitats than are available, and that connecting corridors can help prevent their extinction.

Ramping up protections

It has been a long road to policies that support connecting habitats: In 2018, the Department of the Interior instructed its bureaus in western states to focus on conserving migration corridors, focusing on the needs of species like elk and pronghorn. The order asked states to define priority migration corridors where conservation could help prevent animal barriers, including things like putting in wildlife-friendly fencing and replanting areas affected by wildfire. “It really kicked off a larger effort,” says Stemler.

Late last year, the Bureau of Land Management, which is responsible for 1 million square kilometres of public lands, issued a policy emphasising the importance of habitat connectivity. It instructed its state offices, agencies and tribal governments to collect data on wildlife needs, and to prioritise their findings in management decisions. “Scientists tell us that we stand to lose a third of our wildlife species if we don’t act,” says director Tracy Stone-Manning. “As the country’s largest land manager, that makes it incumbent upon us.”

While many issues around managing wildlife spur fierce partisan debate in the US, efforts to promote wildlife corridors now garner bipartisan support. John Barrasso, an orthopaedic surgeon and Republican senator from Wyoming, who has been vocal in his opposition to policies to address climate change, for instance, testified in a 2019 hearing that he had taken care of countless patients injured in car accidents with animals. He has since supported the inclusion of funding for wildlife crossings in legislation.

Many states have been trying to build such structures for years, but just didn't have the money. "It's always a funding issue, having the necessary resources to do work," says Stemler. But the \$1.2 trillion Infrastructure Investment and Jobs Act passed in November 2021 designated \$350 million specifically for animal-focused infrastructure – the largest ever investment in wildlife crossings. "The infrastructure money will be a nice shot in the arm," say Stemler.

What's more, new research also shows that crossings can actually save money: One 2022 study analysed collisions near 13 major road crossings in Washington state, and found that each structure saved between \$235,000 and \$443,000 dollars a year by reducing accidents.

The urgency of the issue is growing with increased pressures on land use. During the pandemic, there was a flood of people moving to rural areas and a corresponding boom in housing development. At the same time, interest in outdoor recreation skyrocketed – including things like hiking and the use of all-terrain vehicles, which are increasingly encroaching on animal habitats. "We're funnelling animals towards our open spaces, which tend to be our public lands," says Stone-Manning. "And so that's in part why we have to get smarter about managing with – and for – wildlife."

The growth of commercial-scale renewable energy, like large solar farms, is now causing some of the same kind of fragmentation seen with the oil and gas industries. The Bureau of Land Management is currently in the process of updating a 2012 plan to guide solar energy development on public lands, and is seeking public input. "It just feels like the clock is ticking. We have a lot of work to do in a short amount of time," says Stemler. "It's well known that once habitat connectivity is lost, it's exceptionally difficult to recreate, and sometimes impossible."

In the western US, making progress often means involving private landowners, as well as state and federal agencies, says Cramer, making collaboration essential. She has worked with transportation departments in many states and recently co-authored a report for the Nevada Department of Transportation on best wildlife transportation practices for government agencies. She explains how important it is to plan long term and rely on science to identify key species and areas to target. The best-case scenario is to have someone whose job is to coordinate efforts: Colorado, for example, now has a Wildlife & Transportation Alliance to

direct wildlife-highway efforts between civic groups, tribal and state governments. “That seems to be the secret sauce at the state level,” says Stemler. “To have a dedicated person to keep things going.”

Despite the hurdles, Cramer sees immense progress being made – and notes that real change is possible, even if it takes time. As a reminder of this, she keeps a silver coin engraved with a peregrine falcon from 1971, minted when the pesticide DDT was killing off the country’s birds of prey. Scientists and environmental advocates organised to ban the chemical, becoming one of last century’s great conservation success stories. “So I do hope that we can re-establish populations,” says Cramer. “They just need a chance to recover.”

Increasingly, “we are just more deeply understanding the importance of connectivity across the landscape,” says Stone-Manning, from the cultural significance of big game in western states to the critical pollination services that less charismatic species like bees and butterflies provide. “It’s easy to think about wildlife in the abstract,” she adds. “But wildlife is critical to our long-term future as humans – not only for the beautiful wonder that they bring into our worlds, but for the important functions they serve. To think that that would be lessened for future generations makes the purpose of our work all the more important.”

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