



MADE IT Pronghorn easily pass under a fence on which the bottom two strands have been entwined. Simple solutions like this allow wildlife to reach water, fawning grounds, and winter range.

FINDING A WAY // THROUGH

Biologists and ranchers are devising innovative ways to help elk, deer, pronghorn, and other wildlife travel over, under, and through livestock fencing without harm. **By Jack Ballard**

Growing up on a ranch west of Three Forks, my two older brothers and I chafed every time we heard Dad announce the day's job was to "fix fence." Yet even back then I understood the value of fencing. Those miles of barbed wire surrounding the perimeter and intersecting the interior of our ranch were important livestock management tools, and they needed constant care. Fences kept cattle out of

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crops, delineated property boundaries, and prevented the co-mingling of our superior cows (in my father's opinion) with the substandard stock of our neighbors. Among his pet peeves were folks who failed to keep up their half of the fence line. Though no law in Montana requires ranchers to fence in their cattle, a long-standing tradition assumes neighbors will do so and also split fencing chores 50:50.

That's because most landowners agree with the old saw that "good fences make

good neighbors," meaning that it's far easier to get along if neither of you (nor your stock) trespasses on the other's property or privacy.

In recent years, the concept of "neighbor" in Montana has expanded beyond the woolgrower or cattleman down the road. It now includes the furred and feathered creatures that live among us and need to travel across the landscape to use various types of habitat during the year. For human neighbors who raise cattle and sheep, "good" fences are tight, maintained, and, most of

all, impermeable to livestock. But for wildlife neighbors, a "good" fence is usually one that allows them to get to the other side without injury.

How can fencing contain domestic ungulates like cattle while still allowing wild ungulates like pronghorn and elk calves to pass through unhindered? Biologists and ranchers are finding ways. By tailoring fence design and placement at key wildlife movement areas, they are reducing wildlife injuries while helping the landowner's bottom line. "Wildlife damage to a rancher's fence can be expensive and time consuming," says Ken McDonald, head of the Montana Fish, Wildlife & Parks Wildlife Division. "Many wildlife-friendly designs out there are easy to put into place and can help reduce fence repair costs."

SNARED, SNAGGED, AND BLOCKED

The vast majority of fencing across Montana does no harm to wildlife. But in some areas, fences pose physical hazards and migration blockages. Wildlife can get their horns or antlers caught in loose barbed wire. In residential areas, iron fences with spikes or pickets can impale leaping deer or elk that misjudge the height. The biggest problem is when the legs of deer and elk become entangled in the top one or two strands of a barbed-wire fence while the animal tries to jump over, causing it to die of trauma, starvation, or dehydration. Fawns and calves are the most vulnerable, but even adult deer and elk get caught in fences on steep slopes or when

running from predators or racing across roads. Even if the ensnared animal manages to escape, barbs can tear ligaments or cause infection that lessens its chance of surviving.

Fences can also force animals to expend precious energy in winter when attempting to find food and shelter. Jumping a fence or two is no big deal. But if wildlife must migrate dozens or even hundreds of miles, as is the case with some pronghorn and elk herds, they could face a gauntlet of fences, each one sapping strength and fat reserves.

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What's more, fences can separate a mother from her young, or completely cut wildlife off from forage or water or reaching such core habitat as that used for fawning or winter range. "Most big game animals need to move throughout the year to different seasonal habitats to find better feeding, breeding, and rearing conditions," says Joel Berger, the John J. Craighead chair of wildlife biology at the University of Montana and a senior scientist at the Wildlife Conservation Society. "Fences can be major impediments to those critical migrations."

One example is in southern Canada and north-central Montana, where for thousands of years pronghorn have traveled south 100 miles or more in early winter. Their destination: the windswept bluffs of the Missouri River Breaks, where they find exposed grass to eat. Highways, railroad crossings, canals, and rivers slow their progress, but the biggest impediments are fences. "We've known for a long time that barriers hamper antelope migrations," says Drew Henry, FWP wildlife

biologist in Glasgow. "During that severe winter of 2010-11, we saw several places where they were stacking up along fence lines. Antelope may spend days walking back and forth trying to find a way through. During an epic winter like that one, additional days can be critical to their survival."

Some fences even harm birds. Swans, geese, and ducks collide with fences that cross streams, while raptors—especially low-flying species such as the northern harrier—can become tangled in barbed wire or break a wing when chasing prey. Sage-grouse also collide with fences, usually while flying to and from breeding leks during spring in the dim light of early morning.

UNDER BUT RARELY OVER

The most impermeable fencing is what ranchers call sheep fence or woven-wire—constructed of roughly 6-by-6-inch squares of thick wire with one to three strands of barbed wire on the top. Though this type of fencing effectively contains sheep, which can wiggle through regular barbed-wire fence, it blocks pronghorn and other wildlife trying to move past.

Most adult deer and elk will easily leap over sheep fence. But pronghorn, which evolved in prairie environments with no obstacles to jump, rarely make the leap. "Fences can trap antelope on roads, making them susceptible to vehicle collisions, or slow them down to where coyotes or wolves, which ordinarily aren't nearly fast enough, can actually overtake them," says Julie Cunningham, FWP wildlife biologist in Bozeman.

In addition to pronghorn, sheep wire impedes the movement of young moose, deer, elk, and black bears.

In the mid-2000s, researchers at the University of Utah documented wildlife



VICTOR SCHEDEL

DAWN Y. WILSON

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GRIM FATE Most fencing in Montana serves its primary function—delineating property and managing livestock movement—without harm to wildlife. But in some cases, fences trap, entangle, and severely injure wildlife as it migrates across landscapes. Clockwise from top left: Though two hunters were able to free this entangled calf, other elk and deer are not so fortunate; sage-grouse are killed when striking wires flying to and from breeding leks in pre-dawn darkness; deer and other wildlife caught in fences usually die of trauma, dehydration, or starvation; pronghorn are especially vulnerable because they haven't evolved to leap fences; even flying waterfowl like this trumpeter swan can be killed by fences stretched across streams where the birds fly low.



mortality along 600 miles of fence in Utah and Colorado rangelands. By repeatedly driving and walking fence lines over two seasons, they found an average of one dead deer, pronghorn, or elk per year tangled in barbed wire for every 2.5 miles of fence. Most of the animals had been caught in the top one or two wires while trying to jump over. The scientists found that 70 percent of the mortalities were on fences higher than 40 inches, and that the vast majority of casualties were juvenile animals.

The most lethal fence type? Woven-wire topped with a single strand of barbed wire.

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FINDING SOLUTIONS

Over the past several years, wildlife biologists with FWP and the Montana Department of Transportation (MDT) have been working with landowners across Montana to find ways to modify

fences to reduce hazards to wildlife while still managing livestock movement. Landowners are encouraged to focus on high-traffic areas where problems are most likely. “Trails and seasonal routes indicate where and when fencing adjustments might be needed most,” says Joe Weigand, an MDT wildlife biologist who previously worked on wildlife-friendly fencing solutions for FWP.

Henry, the FWP biologist in Glasgow, says he identified a bottleneck near Nashua where pronghorn are forced to cross a highway, several fences, and an active railroad. Easing some of the animals’ stress and difficulty “was as easy as talking to the landowner to get his permission, rounding up some local guys, and pulling out an unused fence,” he says.

When it comes to modifying existing

fence at critical wildlife routes, landowners have many options (details and diagrams are shown in FWP’s free *A Landowner’s Guide to Wildlife-Friendly Fences*; see editor’s note on page 39 on how to obtain a copy), including:

- ▶ **Keep gates temporarily open.** Along key migration areas intersecting with sheep fence, the addition of a new gate—or simply having an existing gate—that can be opened in winter may provide all the passage that’s needed for migrating pronghorn. “Many ranchers I know are receptive to leaving gates open when they pull cattle or other livestock from the range,” says Henry.

- ▶ **Swap out the top and bottom barbed wires with smooth wire.** “This can greatly reduce cases of wildlife entanglement,” says Weigand. “Covering those two wires with

Landowners, communities, and homeowners need fences to keep elk from ravaging haystacks, wolves and other large carnivores from preying on livestock, bears from raiding garbage bins and chicken coops, and urban deer from damaging gardens.



PVC pipe also works well.”

- ▶ **Raise the bottom wire to 18 inches above the ground.** This allows adult and juvenile pronghorn, deer fawns, and elk calves to slip underneath.

- ▶ **Lower the top wire to around 40 inches.** This makes it easier for adult deer and elk to jump over.

- ▶ **Create lay-down portions of fence.** These can be laid flat on the ground during times of migration. “Most of the designs allow just one person working alone to drop or raise the fence segment,” Weigand says. In addition to allowing free passage of elk, lay-down fencing reduces the costs and labor required to repair fences that are damaged by migrating wildlife.

- ▶ **Tighten any loose top strands of wire.** Loose wire makes it more likely that the legs of jumping animals will get caught or the antlers of a buck or bull will become tangled.

- ▶ **Temporarily lower top wires and raise bottom wires.** Use staple locks or PVC pipe to gather several wires together to create larger openings.

- ▶ **To reduce bird fatalities, place fence flags or markers on wires to make them more visible.** Studies in Montana, Idaho, and Wyoming have demonstrated that markers can reduce grouse collisions with fences by up to 80 percent.

ON THE OTHER HAND

Sometimes fences can actually benefit wildlife. MDT builds tall woven-wire fences along stretches of highway where crossing wildlife—always a danger to motorists as well as the animals—would be particularly hazardous, like on blind curves. “But where drivers can see farther down the road, it’s

better to have permeable fences so animals can get across the road as quickly as possible and not get trapped where they’d be hit by vehicles,” says Weigand.

And of course landowners, communities, and homeowners need fences to keep elk from ravaging haystacks, wolves and other large carnivores from preying on livestock, bears from raiding garbage bins and chicken coops, and urban deer from damaging gardens and shrubbery.

In Montana, good fences still make good neighbors. It all depends on who the neighbors are, and whether the fence is supposed to keep domestic animals in, let wild animals through, or—ideally—do both. 🐾

FWP’s free booklet, *A Landowner’s Guide to Wildlife-Friendly Fences*, contains detailed designs and diagrams for many different fencing adjustments and modifications to reduce wildlife injury and migration blockage. Get a copy of the popular publication by calling any FWP office or by downloading the PDF from the FWP website (fwp.mt.gov). Under the “Hot Topic Info” box in the right side of the home page, first



click on “Fish and Wildlife Links,” and then select “A Landowner’s Guide to Wildlife-Friendly Fences.”

Landowners may receive additional wildlife-friendly fence modification information as well as help with design and even cost-sharing through FWP’s Private Land Technical Assistance Program. For more information, call (406) 444-3798. Landowners can also ask their local FWP wildlife biologist or game warden if they know of any sportsman’s groups or other organizations interested in volunteering labor for wildlife-friendly fencing projects.



SIMPLE SOLUTIONS Methods for providing safe passage for wildlife depend on the species and type of fence. Clockwise from bottom: If a few rails are temporarily lowered or removed during spring and fall migration, pronghorn can move easily through a jackleg fence; plastic cards clipped to the top wires can prevent flying sage-grouse from crashing into fences during low-light flights; though more expensive than other options, a gate built into a woven-wire or sheep fence can be opened to allow easier passage for pronghorn and other wildlife (as well ranch workers and their dogs).



CLOCKWISE FROM TOP LEFT: SETH WHEELER; JEREMY ROBERTS; DIANA LEWASSEUR; MARK COCKE, WY GAME & FISH DEPT.; MONA DOEBLER

TOP TO BOTTOM: DIANA LEWASSEUR; JACK BALLARD; JUDY WANTULOK