Section 6

Electric Fencing to Exclude Deer and Elk from Recovering Burned Areas

Jim Knight, Extension Wildlife Specialist, Montana State University, Animal and Range Sciences Department,
Lisa Schmidt, former Montana State University Extension Service, Madison-Jefferson County Agent

Following forest or range wildfires, it is often necessary to eliminate grazing for a period of time to allow vegetation to recover. Controlling livestock grazing, although expensive for the rancher, can be accomplished by putting the livestock in other pastures. Controlling the use of areas by large ungulates is much more difficult.

Several methods to control deer and elk have been used with varying levels of success. Repellants such as periodic explosions and odors can be effective for limited periods, but are not long-term solutions. The more desperate the animals are, the more likely they are to put up with noises or odors. After wildfire, food may be scarce and deer and elk will put up with more disturbances than they would if there were more alternatives.

Exclusion, although expensive, is usually the most effective method to protect large areas such as pastures or revegetated forestlands.

Fencing to exclude elk and deer from pastures

Fences are the most effective way to protect vegetation over the long-term. Several types of fences are available to exclude elk and deer. One must first consider the cost of constructing and maintaining the fence as well as the effectiveness of the fence. Seven-foot woven wire fences have proven to keep elk and deer out for up to 30 years, but they are expensive to construct (Table 1). Barbed wire fences are less expensive to construct, but are usually less effective and require more maintenance. Electric fences are relatively inexpensive to construct and will effectively exclude elk and deer if constructed properly. However, they have a higher maintenance requirement than a woven wire fence.

Table 1: Effectiveness and cost of various fence types.*

Fence	Construction Cost/Mile	Expected Life	Effectiveness
7 ft. Woven-wire	$4787	30 years	Excellent
7 ft. 10-wire, barbed	$4027	30 years	Good
7-ft. wire Perm. Elect.	$4000–$5950	30 years	Excellent
2-wire Temp. Electric	$1310–$1685	10 years	Moderate

**Labor is not included in cost estimates. $283 for a solar-powered electric charger is included in the electric fence estimates. Chargers generally vary in price from $100 to $475.*

Constructing an effective permanent electric fence

Electric fences are psychological barriers rather than physiological barriers. Whole herds of elk and deer can be repelled by an electric fence when one animal is shocked. Others in the herd see the reaction to pain and identify the electric fence as a threat. For electric fences to be effective psychological barriers, they must consistently impose a perceived threat.

High voltage, high tensile 8-wire electric fences will repel both elk and deer. If only elk are a problem, 7 wires will be enough. The fence should be about 6 feet high. The bottom 4 wires should be spaced 8" apart. The next three wires can be spaced 10-11 inches apart. Every other wire should be a ground wire.

At least 4,000 volts must be continuously maintained in the fence using a high quality fence charger. Because the hollow hair of deer or elk acts as an insulator, 4,000 volts are required to provide sufficient shock. It is imperative that the fence is charged as soon as any portion is completed. Even if only 100 yards are built in a day and wildlife could easily walk around it, charge that 100-yard segment. Once the fence is constructed, periodically check the voltage with an electric fence tester.

A good ground will ensure that the voltage is high enough to repel elk and deer. Plan to use four ground rods, buried 6 feet apart. Pound 6-foot galvanized rods 5 feet into the ground. Galvanized pipe will provide a good ground, but be sure to cap the top so rainwater does not fill the pipe. If rocky soil prevents driving a ground rod, bury the rod horizontally as deeply as possible and connect insulated ground wires from the fence to it.

Deer and elk will constantly test a fence, so if they find they can penetrate it one time, an electric fence loses its effectiveness. The fences should always be charged. A common mistake is to turn off the electricity during the off-season. This makes the fence ineffective even when it is recharged because the deer and elk have learned they can penetrate it.

Because the fence is a repellant, it is important that elk and deer can see it. Use shiny metal reflectors on wire

or use polytape. The shiny reflectors will attract curious wildlife more than almost invisible electric wire. Polytape comes in a variety of colors, but studies show that white provides the most contrast so it is the most visible. Expect to replace polytape every 3-5 years if revegetation will take a longer period of time. If the fence crosses through heavy vegetation, plan to clear a 10-15 foot buffer outside the fence so elk and deer will see it. On steep slopes, the buffer should be wider.

Hot wires can be initially coated with a mixture of peanut butter and molasses. This mixture attracts elk and deer and insures that the first contact with the fence will be with the tongue or nose instead of the body insulated by hair. To coat wires with the mixture, combine the peanut butter and molasses to the consistency of thick paint, then use a mop glove to spread the mixture along the wires.

Vegetation that touches the fence may divert some of the voltage. If possible, plan to mow vegetation under the fence. If mowing is not feasible, plan another option for controlling vegetation that may short out the fence. Pull grass by hand, cut shrubs with a machete and trim trees with a chainsaw. Herbicides also control vegetation well.

Electric fence chargers can be solar- or battery-powered or use an AC current. AC current chargers are the most reliable and least expensive, but a hard-wire system is not always feasible because many areas are not near electric power sources. Deep-cycle battery-powered chargers and combination solar/battery powered chargers are good alternatives when main power is not available. Two or more chargers might be more effective if large areas are to be fenced. When designing the electric fence, buy a low-impedance charger with enough power to compensate for stray vegetation or other possible shorts.

Chargers should be located as near the fence as possible. Mount a charger to a wooden post or other stable fixture. Face solar panels towards the south at an angle that faces the sun. A solar-powered charger needs a minimum of 4 to 5 hours of sunlight each day so it can charge the battery. Cloudy days usually will provide enough sunlight to energize a fence, but the battery must be charged so the fence will be energized at night.

Effective temporary electric fences

Two-strand, 17-gauge temporary electric fences have proven effective under moderate deer and elk pressure. The principles behind temporary electric fences are the same as the principles of permanent electric fences. The fence is a psychological barrier rather than a physical barrier. It is important to install this type of fence prior to the time the deer or elk start using the area. Elk and deer must be able to see the fence and be conditioned to avoid it.

Temporary fences are less expensive to construct than permanent fences, but require more maintenance. They are a good option for areas that have heavy snowfall or other conditions, which cause seasonal grounding or maintenance problems.

To construct a temporary electric fence, suspend the hot wire (+) about 36” high and the ground wire (-) about 18” high. Plastic or fiberglass rods are convenient temporary posts; place them 30-60 feet apart. Use wooden posts or T-posts with insulators to support the corners.

Wrap aluminum foil “flags” on the hot wire at 20-50 foot intervals, and then coat the hot wire and “flags” with peanut butter and molasses. If you use polytape, a mop glove can be used to spread the mixture and the foil will not be necessary. Although it can result in sticky conditions, one researcher soaked the whole spool of polytape in molasses before it was suspended.

Keep the fence clear from vegetation that will short out the electric current. Maintain a clear buffer on the outside of the fence so elk and deer will see it.

AFTER WILDFIRE — Information for landowners coping with the aftermath of wildfire

James E. Knight, editor

Extension Agriculture and Natural Resources Program, Montana State University, Bozeman

This book provides information to help landowners cope with the aftermath of future wildfires in Montana and in other states. Each section can be copied and distributed as needed. To obtain a copy of this publication or any of the following sections, please contact your local Montana State University Extension agent or download a PDF file at www.montana.edu/publications.