

TECHNICAL NOTE  
USDA-Natural Resources Conservation Service  
Spokane, WA

RANGE TECHNICAL NOTE 102

JULY 2009

RIPARIAN AND OTHER TIGHT FENCE - WILDLIFE  
CONSIDERATIONS

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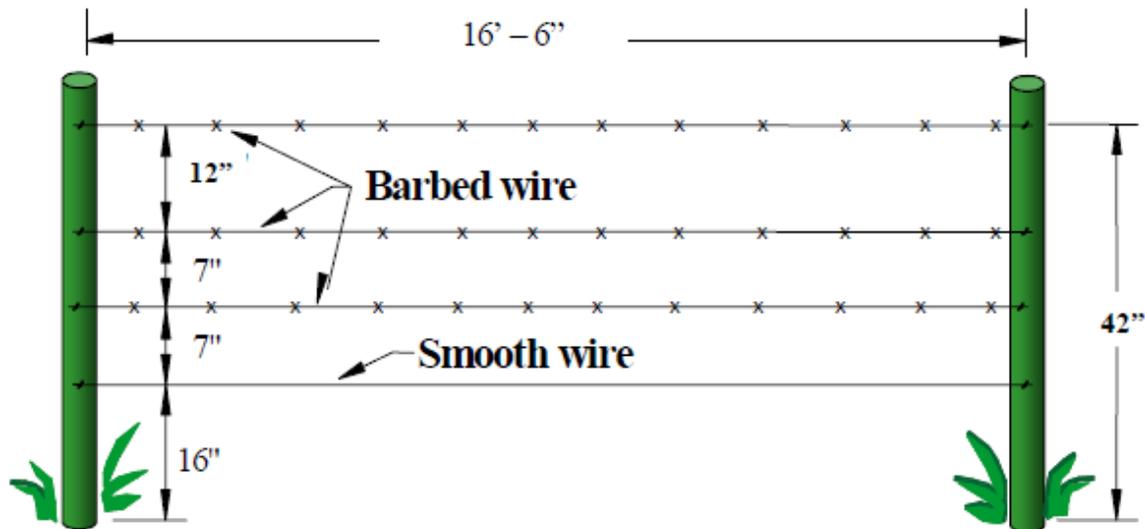
Tim Dring, NRCS State Biologist

Livestock fences may prohibit or inhibit big game movements and may cause injury or death to animals that unsuccessfully negotiate fences. Big game traverse wire fences by:

- crawling under the bottom strand,
- by penetrating between strands, and
- by jumping over fences.

The propensities for using these 3 strategies vary among big game species, and among age/sex classes of animals.

Crawling animals may sustain cuts by a low bottom wire. The young of most species are most apt to use this strategy. Most published recommendations for fences suggest a smooth bottom wire at least 16 inches above ground, although a bottom wire at 10 inches above ground is suggested when holding domestic sheep is necessary. However, this accommodation also lets young livestock pass under the fence.



Penetrating animals may be cut by barbed wires. Worse, they may pass horns or antlers through the fence, be unable to penetrate with their entire bodies, and have horns or antlers entangled between wires with 6-8 inch spacing. They then "fight" the fence, risking cuts to the head and neck and potentially death. Most publications recommend wire spacing of 10 to 15 inches to accommodate penetrating big game. However, closer spacing is needed to hold domestic sheep, or where extreme restriction of livestock movements is needed. See the suggested alternatives section of this paper when closer spacing of wire is required.

Jumping animals may be cut by a barbed top wire; may entangle legs between the two top wires; or may become hung up with front and back legs on opposite sides of the fence. Adult deer and elk are most prone to jump fences. Whitetails and mule deer draw their legs under their bodies as they leap a fence. Entanglement between the top two wires usually involves a hind leg and occurs as an animal attempts to jump with the hind legs “tucked” under the body. A leg going under the top wire may kick back into the second wire, entangling the animal. As the animal falls, a hind leg pivoting over the top wire may twist the second wire upward, producing a tight bind around the leg.

The lowest possible fence presents the least entanglement hazard. Published recommendations are for fences between 32 and 42 inches high, depending largely upon whether domestic sheep or domestic cattle are being held. A smooth top strand, or covering the top strand with white 1-inch PVC pipe, is recommended in areas of abundant big-game use, where trails cross fence lines, and in fence corners within big game habitats.

Entanglement hazard is also increased if the top wires are closely spaced and not strung tightly. To avoid this problem, most published recommendations are that the top strands be 10 to 12 inches apart, and that frequent stays be used to inhibit twisting of the top wires. For big game, an ideal strung-wire fence has few, tight, mostly smooth wires, widely spaced for penetration; with a high bottom strand for crawling animals and a low top strand for jumping animals. Minimum length for chosen wildlife crossing is that distance between two posts or 1 rod (16.5 feet), whichever is greater

Fence may be designed to have more strands, reduced spacing or a height greater than 42 inches high. However some combination of the following must be used for these very tight fences to address wildlife passage.

1. Elk/deer jumps
2. Adjustable and Sliding Gates
3. Increased visibility

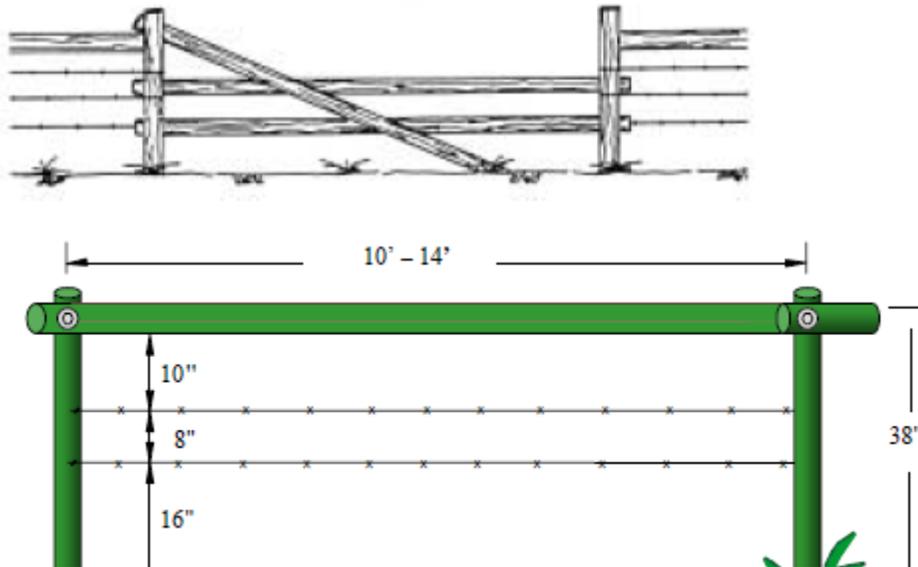
**What to do when a fence absolutely has to be higher because the livestock pressure cannot be managed or reduced.**

**Tips for increasing the effectiveness of a wildlife friendly fence and for livestock containment:**

1. The key to minimizing hassle for both wildlife and livestock is to build a tighter wildlife friendly fence:
  - a. Keep fence wires taut. This requires building straight sections of fence line between ends, corners and braces. In riparian areas, this will usually require more brace assemblies than the usual 1320 foot spacing.
  - b. Use more wood line posts (for example every third line post or all line posts)
  - c. Reduce the distance between line posts
  - d. Increase the number of stays and use wood stays between line posts so top and second wire will not cross
  - e. Flag the fence immediately after construction to increase fence height visibility and protect your fence until wildlife and domestic livestock become accustomed to the new barrier by:
    - i. vinyl ribbon hung on top of the fence in a heavily crossed area,
    - ii. covering the top strand with white 1-inch PVC pipe, or
    - iii. Using vinyl coated high tensile wire for the top wire.

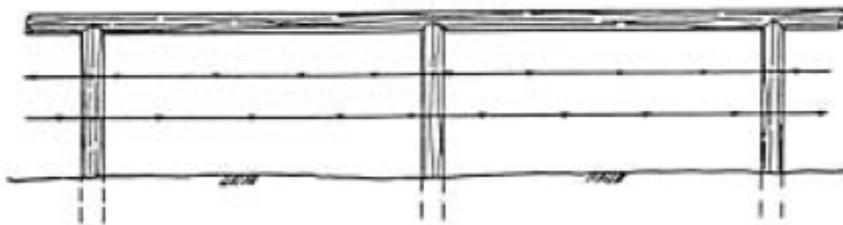
- iv. Combine with good management practices; moderate stocking and proper use, water developments, and close supervision.
2. Wood pole at top wire between two posts maximum 38 inches high (38-inch elk jump),
3. Smooth wire on top and/or bottom, top wire tied down between two posts, bottom wire tied up between two posts,
4. PVC on top wire for entire length between two posts; raise bottom wire in that stretch, lower top wire in that stretch

### ELK/DEER JUMPS



### POST, POLE, & WIRE FENCE

Not to scale



These are made of corral poles stacked parallel to the ground to the recommended height of 40-48". Length can vary but shouldn't be shorter than 14'. Elk/deer jumps are installed at each brace assembly location. Depending on the length of the poles, distance between brace assemblies should not be less than 12' apart. Elk/deer jumps will be constructed of three rails or fewer. All rails must be the rounded log-type (not a flat 2" x 10" or larger plank that creates a visual barrier nor a split rail – where snow builds up easily). The fence should not be over 48" tall with spacing between each rail of 16" for the younger animals to pass through.

### **ADJUSTABLE AND SLIDING GATES**

Removable fence sections and gates also help mitigate migration blockages. Simply removing sections of fence or opening strategically located gates will reduce blockages of critical migration routes for elk and deer herds. This allows movement to access food and shelter.

Design new fences or retrofit existing fences with extra gates. Locate gates at every brace assembly, including end/corner assemblies. Installation of double gates in big game travel corridors and at fence corners, which are left open when livestock are not present can be an effective means to facilitate wildlife passage. A reliable person must be assigned the responsibility of opening and closing the gates at specific times to be certain that the benefit to wildlife is realized.

When extra gates are installed, they should be located where big game can become accustomed to them. Preferably the gates will be opened prior to the arrival of big game into the area. Obviously, livestock management must be timed so that livestock are absent during the season when the gates are open. If fawns are numerous, the openings should be maintained from June 1 to September 1 to allow their passage. For spring, fall, or winter big game movements, local observations will best dictate when the gates are opened.



### **INCREASE FENCE VISIBILITY**

To reduce fence maintenance, a wooden top rail is recommended in areas of frequent crossing. This top rail is visible to big game animals even in poor light and can withstand repeated contact of hind legs and hooves.

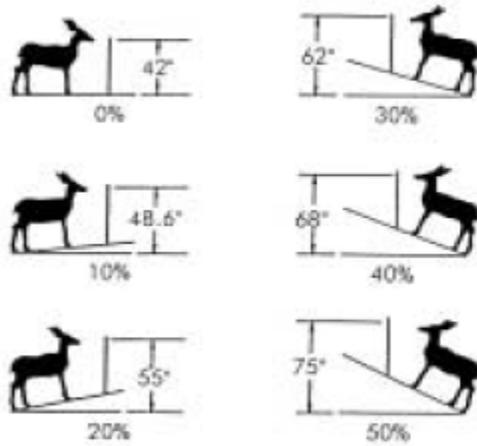
There are several ways of attaching top rails. The most reliable and preferred method of is to lag bolt the rail to the side of the posts

Alternatively, cover the top strand with white 1-inch PVC pipe or use vinyl coated high tensile wire for the top wire. This wire is available as single strand or multiple strands to as wide as 6 inches.

### **EFFECTIVE FENCE HEIGHT**

Please realize that when wildlife encounters a 42" fence on a 50% slope, they have an obstacle 75" high to jump.

Figure 1 Barrier Height Increase of 42" Fence on Contour of Different Percent Slopes



The effective height should be evaluated during fence design and construction and the fence height adjusted to maintain the required effective height.

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