

STREAM-CROSSING STRUCTURE FOR DEER FENCE

ROBERT M. BLAIR, Southern Forest Experiment Station, U. S. Forest Service, Alexandria, Louisiana

JAMES A. HAYS, Ouachita National Forest, U. S. Forest Service, Hot Springs, Arkansas

LOUIS BRUNETT, Louisiana Wild Life and Fisheries Commission, Alexandria

Stream crossings are the most vulnerable points in a deer-proof fence. When an inadequately constructed crossing washes out, enclosed deer may escape and unwanted animals enter. Structures of the type described here have withstood 2 years of frequent, severe flooding in the pine-hardwood hills of central Louisiana.

The primary supports are two pressure-treated posts with 8-inch top diameters, one on each side of the stream (Fig. 1). To minimize the danger that they will be washed out during high water they are placed 6 feet back from the channel lips and are set 5 feet deep. Fence height will determine their length.

The intermediate supports are set 6 feet in the ground on 5-foot centers, beginning 2½ feet on each side of the stream center

and extending outward. Pressure-treated poles or 3-inch galvanized pipes are suitable. Their length and number vary with depth and width of the drainage.

The primary and intermediate supports are tied together by a 4- × 6-inch pressure-treated bridge timber set 1½ feet above the bank level. The crossbeam is bolted to the downstream side of the primary supports with galvanized ½-inch bolts. Each intermediate support is secured to the upstream side of the beam by a galvanized U-bolt.

When the span between primary supports is 12 feet or less, intermediate supports reach only to the top of the beam. On wider crossings, one or more of the intermediate supports must be high enough to hold up the line fence.

To make a flat surface for attaching the

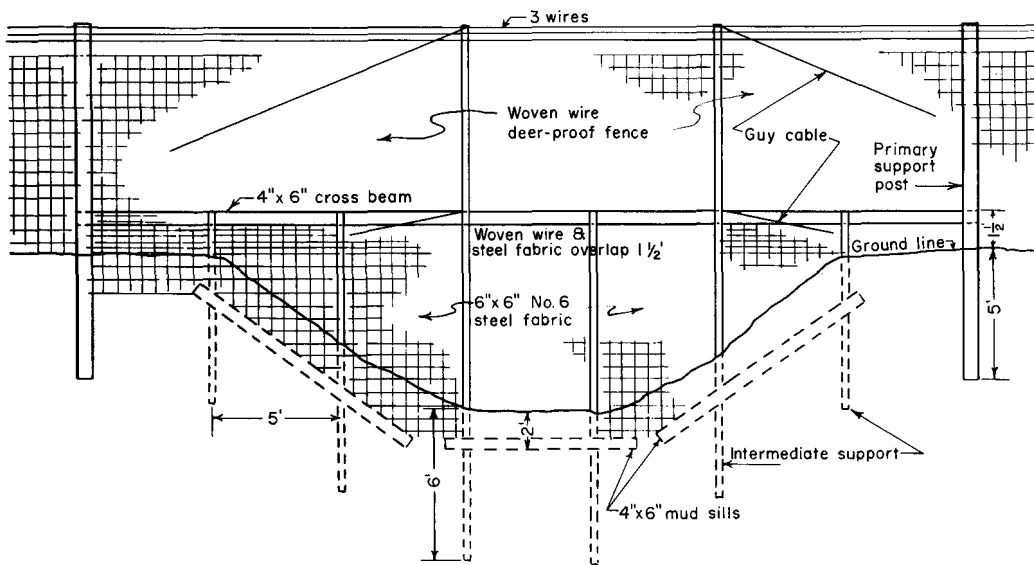


Fig. 1. Upstream elevation of structure for crossing streams with deer fence.

steel fabric and line fence, the upstream side of the crossbeam is faced between supports with doubled 2×4 's of treated lumber. This completes the structure's framework.

The area below the horizontal beam is covered on the upstream side with steel concrete-reinforcing fabric. A 6×6 -inch mesh excludes dogs, woods hogs, and other unwanted animals. Where such animals are not a problem, larger mesh is preferable because it catches less debris and costs less. Six gauge or heavier wire is needed in all instances to withstand the pressure of high water.

The fabric, cut to conform to drainage profile, is buried in a trench 2 feet deep along the upstream side of the structure. To retard corrosion, the lower 3 feet of fabric is coated with an asphalt roofing compound. The bottom edge is attached to mud sills— 4×6 -inch pressure-treated timbers—laid in the trench. The fabric is stapled at the top to the horizontal beam and secured to the intermediate supports

at 18-inch intervals with 9-gauge wire.

The net-wire line fence is stretched on the upstream side of the primary supports and stapled. It overlaps the top of the steel fabric $1\frac{1}{2}$ feet.

Large crossing structures must be reinforced with $\frac{1}{4}$ -inch guy cables. Intermediate supports of the line fence are guyed both at the top and at the level of the horizontal beam. Additional cables, if needed, are attached to the beam. The far end of each cable is anchored to a well-rooted tree or to a deadman 30 to 40 feet upstream.

Stream banks and the channel should be stabilized after construction is completed. A double row of sand bags placed on the ground against each side of the steel fabric will protect the soil disturbed during installation. Banks within about 20 feet upstream and downstream of the crossing should be fertilized and seeded heavily to a sod-forming grass. Where soils are highly erodible, wing walls and riprap may be needed.



Fig. 2. A 9-foot deer-proof fence across a channel 25 feet wide. The installation has withstood floodwaters up to the horizontal beam.

A litter barrier 50 to 75 feet upstream will reduce accumulations of debris on the crossing structure. A fence of heavy, 32-inch hog wire, crossing the drainage and extending 20 to 25 feet on each side, is adequate. The bottom edge of the hog wire should be about 2 feet above the normal level of the stream or the bottom of the channel if the stream is intermittent. Debris should be removed periodically from the barriers and crossing structures.

The cost of a stream crossing and litter barrier is governed primarily by stream width and channel depth. The structure shown in Fig. 2, which spanned a stream

25 feet wide and 6 feet deep, cost about \$137 for materials and \$62 for labor. The intermediate supports are of secondhand pipe; material costs could have been reduced to about \$100 by substituting pressure-treated poles (5-inch tops) for the pipes. The litter barrier cost an additional \$12.

Streams should be crossed at right angles to the channel; otherwise, floodwater will be deflected toward one end of the structures and cause washouts. The framework of all crossings should be completed before the line fence is stretched.

The design can be readily altered to

satisfy variations in stream size. For small drainages, the side mud sills and horizontal beam can be omitted, and the guy cables reduced in number or eliminated. Structural strength must be gauged to maximum expected runoff. Skimpy construction will lead to costly maintenance or replacement.

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