

Building and Maintaining Fences in the High Country

By John Miles, local rancher and retired professor of Agricultural Engineering at UC Davis

When I used to “work” I was a professor of Agricultural Engineering at the University of California, Davis. As a part of that job I was co-director of the Agricultural Ergonomics Research Center where we developed new tools to reduce the hazards related to agricultural jobs. My other long term “job” which continues today is management of a cattle ranch near Lone. As part of this operation, we have a U.S. Forest Service grazing permit on the El Dorado National Forest and the allotment is between 4000 to 5000 ft. elevation. There are miles of fence which need to be maintained or reconstructed each year. To assist in this operation, we have developed several tools which may be useful to others. These are generally simple tools which could be made in most home shops. A summary and discussion of these tools follows:

One of the common fencing tools is the steel post driver (Figure 1). The standard driver weighs about 15 lbs. and has a handle on each side. This is a poor tool for our operation. It is also a dangerous tool in that few users have not been hurt when hit by a handle. For us, it is too heavy, and the handles make it difficult to carry in the woods. As an alternative, we use a driver made from oil field pipe with a weighted plug in one end



Figure 2: Modified T-Post Driver for the Mountains

(Figure 2). Our target weight is 10 lbs. The handle is on the end with a handle similar to what is found on a hay hook. It can be carried in one hand like a cane, and can be used as such when traversing rough ground. Posts are driven by gripping the pipe with both gloved hands. We have attempted to use even lighter drivers since most of the time we are just carrying it along the fence. These have not worked out. The lighter drivers do not have enough force to get past a root or rock, but just bounce back.



Figure 1: Standard T-Post Driver

Another tool we use is a barbed wire cart (Figure 3). This manually pulled cart holds a bale of wire on a vertical axis. The cart uses two solid rubber wheelbarrow tires spaced about 16 inches apart. The vertical axis is placed about 3 inches forward of the axel, and the “T” shaped handle tilts up about 5 feet in front of the axel so that when it is pulled at a comfortable height, the wire bale is on a level base. The tension on the wire as it unspools removes some of the weight which is normally felt by the worker. All the components can be purchased for less



Figure 3: Barbed wire cart

than \$100. Most expensive are the tires, but do not try and use a cheap pneumatic tire, as one flat will leave you swearing.

Carrying extra fence posts along the fence line is a nasty task. These are commonly carried on the workers shoulder, but this is an uncomfortable and dangerous task. We have found two alternatives. The first is used when we anticipate the need for 5 or fewer posts along a length of fence. A short rope is threaded through a 5-inch PVC end cap and a loop is tied around the subject posts. The ends of the posts are then sucked forward into the end cap. A loop is then formed on the other end of the rope so that when it is pulled by a standing worker; the end cap is slightly lifted off the ground. This works uphill without the endcap, but it is dangerous without the endcap downhill. A second system is used when more posts are needed. A cart like the one used for the barbed wire is used with an angled "hayrack" where posts are slid through the rack with one end dragging on the ground (Figure 4). One person can move as many as twenty posts with this system if the terrain is not too difficult.



Figure 4: T-Post cart

Another helpful trick for mountain fencing is to paint tools a contrasting color so that they can be easily found when dropped in the duff. We have found that a bright blue color provides the contrast to allow us to find dropped tools.

Another tool that we have adopted is a battery powered chain saw. Trees and limbs that fall over the fence each winter make it necessary to carry a saw along each section of fence. We build over large trees but cut off anything smaller than about 14 inches. Saw weight becomes important, and small gas-powered saws tend to be quite sensitive to changes in altitude and are frequently hard to start. One can waste more energy trying to start a saw than it would take to cut the limb by hand. With the relatively new lithium batteries, a number of manufacturers have now made battery powered chain saws. These start every time you pull the trigger and are no heavier than the gas-powered ones. We carry an extra battery in the truck, but seldom needs it for several hours of fence repair.

One other item that I use in the woods is corked boots. They are somewhat expensive and a bit heavy but they do not slip on the slick forest floor. A young man might think they are a waste of time, but the older I get, the sooner I go looking for these boots. An online search will find that there are some boots which are lighter than the conventional loggers models.

I would like to thank Professor Miles for taking the time to write this guest article sharing his expertise, ingenuity and experience building and maintaining fences in the high country. If you would like to submit an article for an upcoming newsletter, please contact Scott Oneto at sroneto@ucanr.edu