

# TECHNICAL NOTES

## A TECHNIQUE FOR STUDYING FORAGE REMOVAL BY GAME AND LIVESTOCK

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On western ranges domestic livestock and big game often compete for range forage. Enclosures, which may be of various sizes, are commonly used to secure information on competition. They have several shortcomings, not the least of which is their cost. In an attempt to overcome these shortcomings, we have used the "basket" or "cage" approach to separate the effects of deer and livestock.

Plots are arranged in sets of four. Thus, four "treatments" are applied: total protection, protection during winter from deer, protection during summer from livestock and an unprotected plot. A sufficient number of these sets are employed to satisfy sampling requirements.

Since but two of the plots are under protection at any one time, only two baskets need be provided for each set of four plots. In the fall before deer

have congregated in the area and after livestock have departed, the basket is removed from the plot protected from livestock and placed upon that to be protected from deer. In the spring this movement is reversed. Thus, the effect of each

kind of animal, the effect of both combined, and the result of total protection can be observed.

Production estimates are made in the fall. Utilization determinations are made both in the spring and fall. We have used ocular estimates, but any accept-

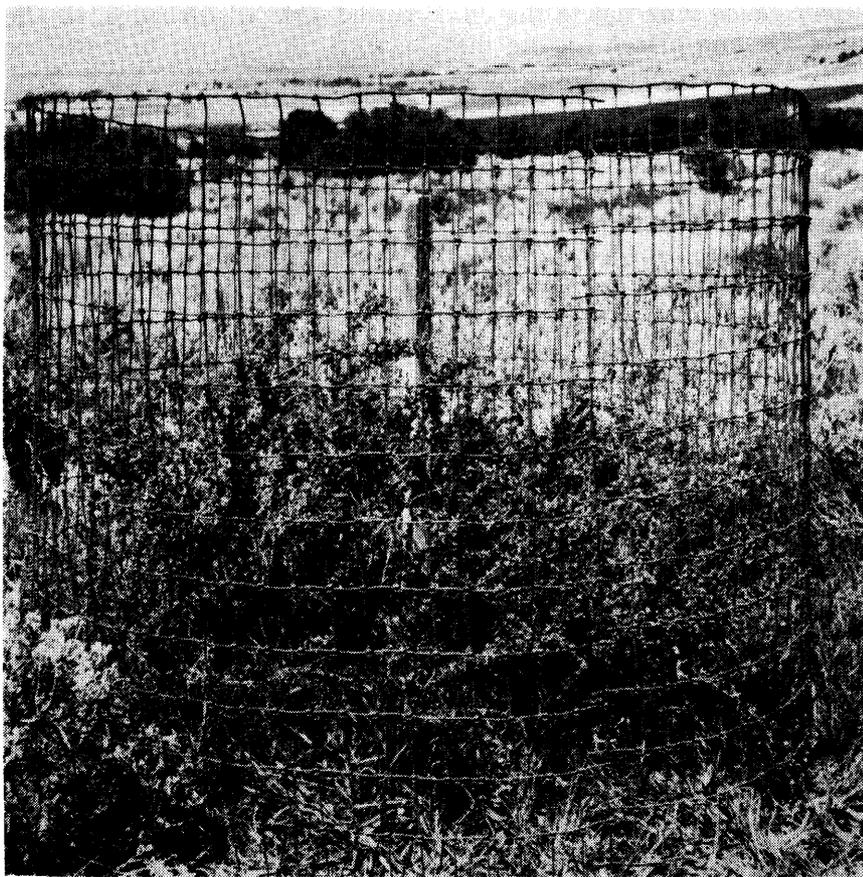


FIGURE 1. Basket of non-welded wire protecting a bitterbrush plant.

able utilization technique can be employed.

This procedure can only be used effectively where there is a seasonal separation of use by game and livestock. This condition is satisfied on many ranges in our areas which deer occupy during winter and early spring and which are used by livestock in late spring or fall.

Because browse plants are of especial concern under the conditions described, the usual "basket" or "cage" in use elsewhere is inadequate. The low basket normally in use, although satisfactory in reseeded areas or wherever the stature of plants is low, is not sufficiently tall to cover plants of interest to us which may grow to several feet in height. These and other considerations led to the type of cage shown in Figure 1. This is a simple cylinder, 4.55 feet in diameter, open at the top, made of heavy gauge wire cut to the desired size and placed around the plot to be protected. The wire is cut on the ground at the time of installation, hence transportation difficulties are minimized since the original roll is compact. Upon installation the free ends of the wire are secured by means of number two hog rings. Tent stakes driven alongside the baskets provide adequate means of anchoring the wire in most situations.

Several types of wire were tried. All were of the same 2 x 4 inch rectangular size (2" horizontal, 4" high). Two gauges of wire were used, number 11 and number 9, and welded and non-welded types were used. The most satisfactory in our opinion is the welded wire, 11 gauge and 4 feet high. This height is satisfactory for all shrubs of moderate height. Where taller shrubs must be enclosed, five foot wire has been used, although we have yet to see evidence of animals reaching into the four foot cages

to browse. Wire of this gauge and construction forms more rigid cages than does the unwelded wire in the same gauge. It is, moreover, lighter in weight. One disadvantage to the welded wire is that 11 gauge wire is not every where available for purchase.

Wire of the kinds tried is available in 100 foot rolls and each roll can be made to provide seven baskets (14.3 ft. in circumference). This encloses an area adequate to encompass most shrubs encountered on winter ranges in our area. It will also accommodate a plot of 9.6 square feet, either round or square, which is a convenient size if weight estimates are to be the basis for forage inventory. Other sizes could be used.

At the outset we felt some concern regarding the possibility of the baskets being displaced by rubbing. To date, cattle have not caused any disturbance of the baskets. A few instances of deer running into them have been noted. Elk have been seen rubbing on baskets placed near their feeding grounds.

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#### A METHOD FOR RANDOM LOCATION OF SAMPLE UNITS IN RANGE INVESTIGATIONS<sup>1</sup> GEORGE M. VAN DYNE

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Plots, transects, or tagged plants often must be located randomly to allow greatest statistical interpretation in range investigations. One of the most common means of randomizing the position of range sample units is by gridding out an area into squares or rectangles with a

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