

# COYOTE-PROOF SHEEP PASTURES

## GOVERNMENT'S SUCCESSFUL EXPERIMENTS ON THE WALLOWA FOREST RESERVE IN OREGON



COYOTE-PROOF FENCE AND HUNTER AND HOUND PATROLLING IT WALLOWA NATIONAL FOREST, OREGON



PASTURED SHEEP ON GRAZING AREA IN HEAVY TIMBER COYOTE-PROOF PASTURE, WALLOWA NATIONAL FOREST, OREGON



CHICO RANGER STATION, WALLOWA NATIONAL FOREST, OREGON



HEADQUARTERS OF THE COYOTE-PROOF PASTURE, SHOWING FOREST SERVICE HUNTERS AND STAYS WITH REMAINS OF THE ABANDONED KILLED BY HIM IN AND NEAR THE COYOTE-PROOF PASTURE, WALLOWA NATIONAL FOREST, OREGON



A SMALL BRUNCH OF PASTURED SHEEP AT CLOSE OF SEASON, FOREST SERVICE COYOTE-PROOF PASTURE, WALLOWA NATIONAL FOREST, OREGON



SLED SPRINGS AND CHICO TRAIL, WEST SIDE OF WALLOWA NATIONAL FOREST, OREGON

WASHINGTON, Nov. 18.—(Special Correspondence of The Sunday Oregonian.)—The Department of Agriculture has recently issued a comprehensive report, illustrated, on a coyote-proof pasture experiment at Billy Meadows, on the Wallowa National Forest, Oregon. It must be of very great interest to the sheepgrowing interests of that state.

This report, which carries the experiments through 1908, discusses the durability of the coyote-proof fence and the cost of maintaining it; the attitude of predatory animals toward the fence; the actions of a band of merino ewes and lambs when at liberty in the enclosure, and the effects of such a grazing system upon the sheep.

The experimental coyote-proof pasture at Billy Meadows was constructed very substantially by the Forest Service under adverse circumstances. As a result, the first cost was high and has caused sheepmen to comment upon the proposition as impracticable, on account of the expenditure, exceeding the advantages accruing from the pasturing system. It is gratifying, therefore, to be able at this time to supplement the discussion already given by a brief report on a pasture constructed and maintained on a paying basis by a private individual.

Mr. J. W. Emmons, of Troy, Wallowa County, Or., owns in the neighborhood of 200 acres of land lying on the banks of the Grand Ronde River. Perhaps 1000 acres of this area will yield readily to agricultural cultivation, while the remainder is open yellow pine forest and break range. Mr. Emmons conceived the idea of handling 1000 ewes and their increase the year round by utilizing a small amount of break range on the public domain near by and feeding a short time in winter.

In the Spring of 1907 he constructed 1700 rods of fence, inclosing approximately 25 acres of open yellow pine forest and break range, and 25 acres of cultivated wheat land. This total area had previously been in four separate enclosures. The division rail fences were left standing in order to facilitate handling and to protect the grain crops.

The fence, designed to be coyote-proof, was as follows:

Posts from three to five inches square and seven feet long, driven 2 feet into the ground, eight feet apart; about three inches above the ground a common barbed wire; three inches above this a 24-inch woven wire, graduated from the bottom up, the top mesh being an eight-inch diamond; seven inches above the woven wire a barbed wire, 11 inches higher another barbed wire; total height 50 inches.

The construction of the fence was not difficult. There were no large canyons to cross; the entire fence line was easily accessible; there was little or no clearing to be done, and it was possible to drive practically all of the posts. Nevertheless the fence was not put up in the best of conditions. Many wash holes were filled by throwing in a rotten log, which, perhaps, would conform to the contour of the hole and perhaps not. There are many places, too, where the bottom wire is six inches from the ground surface. At other points sheep have jumped into the woven wire and have left holes approximately ten inches in diameter. And there are places where the ground slopes to the inside of the pasture at an angle of approximately 10 degrees. It is evident that in such instances a coyote jumping from a point seven feet outside the fence would have to rise only 2 1/2 feet. These facts are given, not for the purpose of adverse criticism, but in order that reliable conclusions may be drawn as to the possibility of fencing against coyotes.

The total cost of wire at Enterprise, Or., then 45 miles from the nearest railroad point, and 45 miles from the Emmons ranch, was 55 cents a rod. The transportation and distribution was done by Mr. Emmons' own teams at odd times during the winter and early spring. The posts were split from timber obtained on his own land near the fence line. Much of the construction work was done by Mr. Emmons himself. Under these conditions the cash outlay for the 1700 rods of fence was approximately \$1200, or 71 cents a rod.

No record was kept of the number and kind of animals that came to the fence. Occasionally someone would ride the line for the purpose of inspection, but not often. So far as known, coyotes were the only predatory animals. During the season of 1907, June 1 to August 31, one coyote was seen within the enclosure. In May of 1908, coyotes entered on several occasions and killed lambs during the night. After a few holes were repaired under the fence, however, there was no

more trouble from coyotes during the season. It was apparent that on each occasion the animals passed to the inside through holes under the fence. Up to this point the discussion has been merely a presentation of facts, with little attempt at definite conclusions. A summary may now be made in the form of conclusions arrived at by Mr. Emmons after 10 years of experience with sheep on the open range, followed by two seasons' experience under the pasturing system. Mr. Emmons' conclusions are as follows:

### The Fence.

(a) The bottom barbed wire should be on the surface of the ground or beneath it everywhere.

(b) Greater care should be taken in filling all holes beneath the fence.

(c) There should be three instead of two barbed wires on top of the 24-inch woven wire.

The results already secured make it possible to offer suggestions toward placing the pasturing system on a practical basis.

The chief drawback to the system at the experimental pasture was the excessive cost of the fence. At the Emmons pasture this objection was done away with, but the fence constructed was not absolutely coyote-proof. To meet the objection of a cost not warranted by the industry and at the same time give a coyote-proof fence, the following specifications are offered:

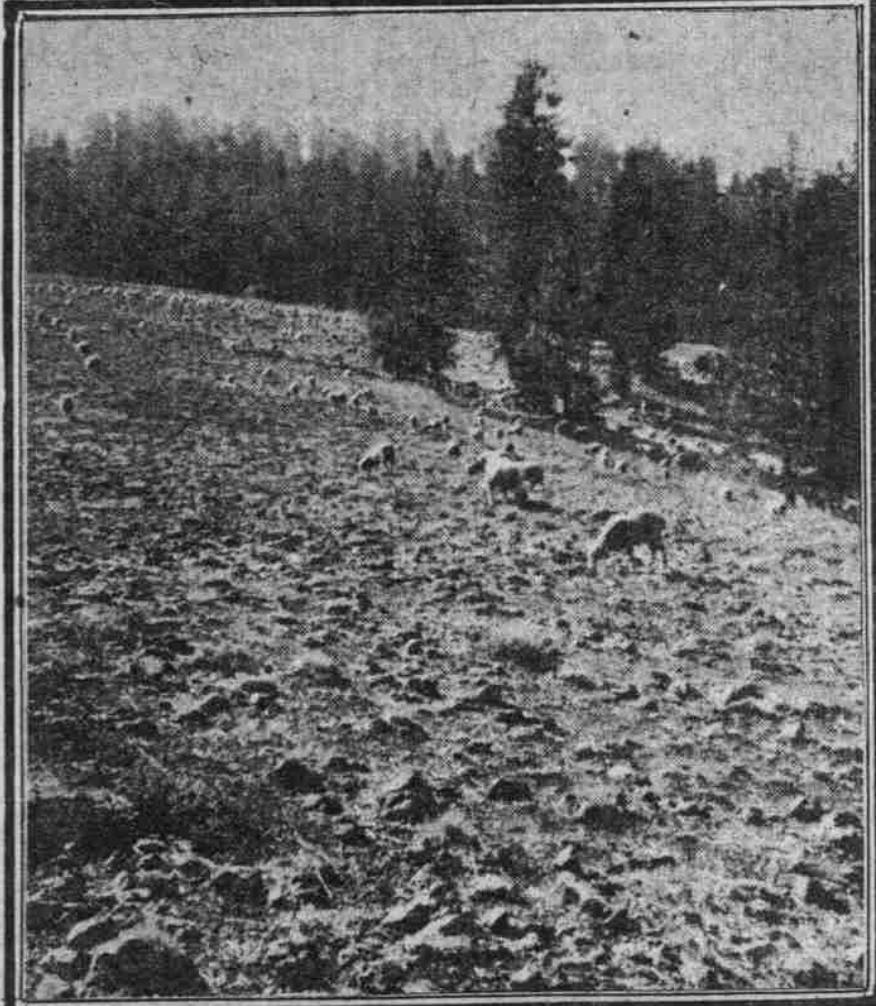
Posts at intervals varying from 5 feet to 20 feet; light stays used every 10 feet where the posts are far apart.

On the surface of the ground a barbed wire, preferably a four-point barb hog wire; three inches higher a 24-inch Elwood lawn fence, with a four-inch triangular mesh; five inches above the woven wire a plain barbed wire; six inches higher a second barbed wire; and eight inches above this a third barbed wire.

The size and number of posts, as well as the depth they are placed in the ground, may be governed by local conditions. Where ground is not rocky and timber is comparatively handy, it is advisable to make posts from four to five inches in thickness, and sharpen and drive them from two to two and a half feet into the ground. Where this method is applicable, they can be placed at short intervals with little expense.

Where timber is scarce, larger posts should be used at greater intervals, up to 30 or perhaps 40 feet, and set at least two and a half feet in the ground. In such cases, stays made from "edgings" or other cheap material should be used at intervals of eight or 10 feet.

The final cost of this fence will, of course, depend upon local conditions, but



OPEN GRAZING IN A GLADE AREA COYOTE-PROOF PASTURE, WALLOWA NATIONAL FOREST, OREGON

An approximate estimate may be given that will serve as a working basis:	
Elwood lawn fence, 24-inch, with 4-inch triangular mesh, at factory, per rod, about	1.35
Freight to local railroad station not to exceed, per rod	.14
Four barbed wire, at 50¢ a rod, on local market, per rod	.20
Total cost for wire on local market, per rod	1.70
Total cost for wire per mile on local market	3241.00
Posts and stays, per mile	48.00
Cost of construction, per mile	128.00
Total cost per mile	\$3400.00

For many localities this estimate will be higher than the actual cost, but if the fence is to be substantially constructed the cost on most grazing lands will approach very closely \$400 per mile.

Among the advantages of the pasturing system that justify this expenditure for fence construction are:

- First—Increased carrying capacity of 50 per cent over the customary herding system.
- Second—Heavier sheep.
- Third—Decrease from 2 per cent to one-half of 1 per cent in the loss.
- Fourth—Less expense for handling.
- Fifth—An increase in the lamb crop.
- Sixth—Heavier and cleaner wool.