

Better Management on Longleaf Pine Forest Ranges

ROBERT E. WILLIAMS

Range Conservationist, U. S. Soil Conservation Service, Crowley, Louisiana

(Paper presented at a meeting of the Division of Range Management, Society of American Foresters, Biloxi, Miss., Dec. 14, 1951.)

LIVESTOCK operations vary greatly in the cutover longleaf pine belt of southwestern Louisiana. The land cover ranges from open grassland to nearly fully stocked, second growth, longleaf pine stands. The ownership pattern varies from small farms of twenty acres to large tracts of many thousand acres. The range is still predominantly "open" or "free range", but many units, privately owned, are being put under fence. It is on the larger fenced, individually operated units that the greatest progress is being made in applying better management practices.

Soil Conservation Service assistance is made available through local, farmer controlled soil conservation districts. Several of these districts have recognized the need for better grazing management of the cutover lands to properly utilize the range forage and to coordinate such practices as improved pasture development and woodland management. As a result, the Soil Conservation Service is assisting landowners to develop a program of forest range improvement. Available research information plus information from landowners who are obtaining desired results is being used. This program is revised periodically to conform to known research results and to farmer tested practices.

Recognizing that the cutover lands can eventually bring the landowner more return from woodland products than from native forage, the open grassland stage is then the starting point in an overall management plan and the fully stocked, carefully managed pine stand becomes the management goal, with livestock in a secondary role.

The practices which each landowner or stockman should carry out in his range conservation program then, should be designed not only to restore or maintain the herbaceous cover of highest forage value but also to facilitate the establishment, proper growth, and maintenance of appropriate pine species.

These general provisions are in keeping with the ecological sequence of plant development in the area and with land capabilities. Also they meet the basic principle of the United States Department of Agriculture to use all land according to its capabilities and to treat each acre according to its needs.

While a livestock operation may be the main source of income to start with, under good management practices, woodland products may eventually become paramount. Many of the increasing numbers of cattle in the area must eventually be cared for on tame pastures.

FOREST RANGE PLANNING

When a landowner requests assistance from his soil conservation district to develop and carry out conservation practices on forest range, the Soil Con-

ervation Service technician goes over his land with him and makes a basic forest range condition inventory.

Ranges are classified into excellent, good, fair, and poor conditions according

is in its top or excellent condition (Fig. 1A) and which decrease under overgrazing are pinehill bluestem (*Andropogon divergens*), big bluestem (*A. furcatus*), switchgrass (*Panicum virgatum*), Indian-

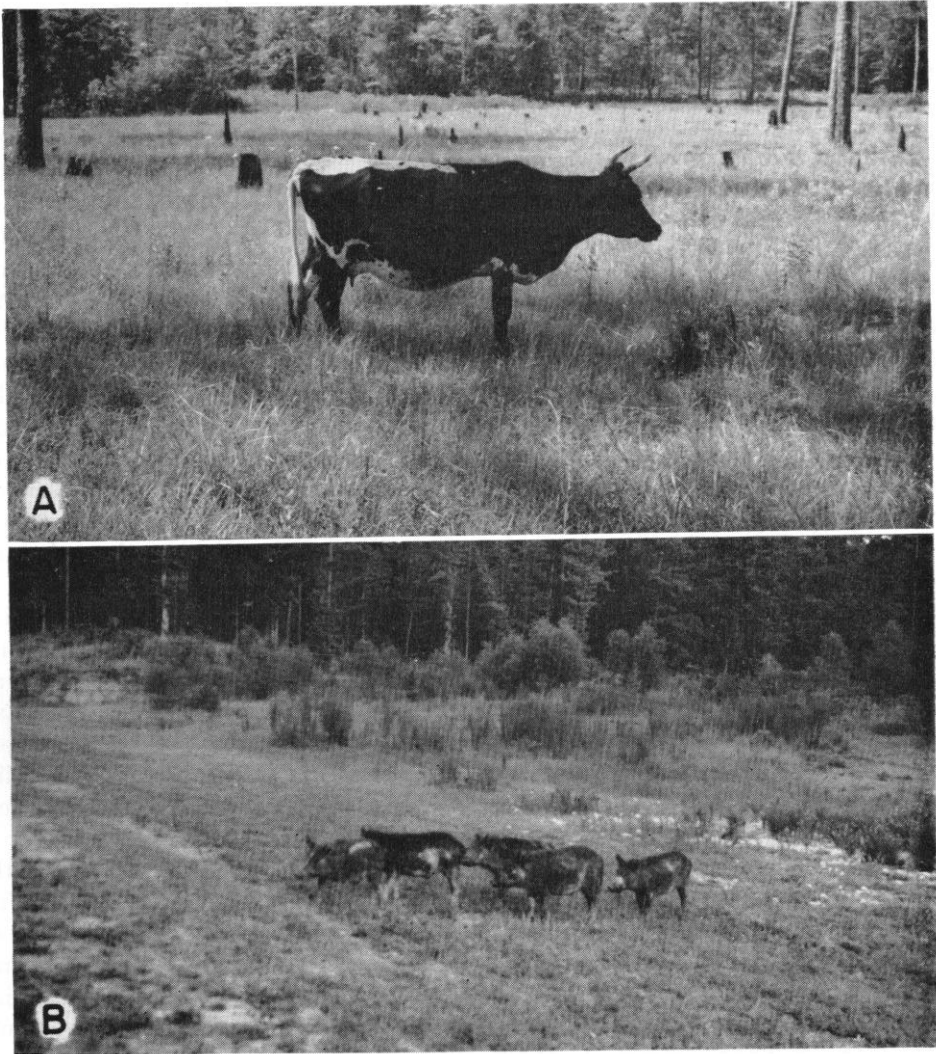


FIGURE 1. CUTOVER LONGLEAF PINE AREAS IN SOUTHERN LOUISIANA

A. Blue-stem range in *excellent condition*. B. Under poor management this range has deteriorated to *poor condition* with a cover of yankeeweed, eastern bitterweed, and low value grasses.

to the kinds of plants that are present (Allred, 1950).

The herbaceous plants which make up most of the plant cover when the range

grass (*Sorghastrum nutans*), and swamp sunflower (*Helianthus angustifolius*).

Plants which make up a small percent of the total cover when the range is in

excellent condition but which increase under the first stages of over grazing are low panicums (*P. spp.*), cutover muhly (*Muhlenbergia expansa*), and slender bluestem (*A. tener*).

Plants which invade the range under severe overgrazing and are indicators of low range conditions (Fig. 1B) are broomsedge bluestem (*A. virginicus*), yan-keeweed (*Eupatorium compositifolium*), eastern bitterweed (*Helenium tenuifolium*), and three-awns (*Aristida spp.*).

On heavier soils, carpetgrass (*Axonopus affinis*), acts as an invader along with the undesirable weeds mentioned above. On areas that can be mowed and fertilized, carpetgrass has proved valuable as tame pasture.

Range conditions show how far the range has deteriorated below its potential producing capacity and are a guide in selecting practices which will maintain excellent and good conditions or improve fair and poor conditions.

About ten acres of open grassland in excellent range condition are required to carry an animal unit yearlong with supplementary feed during the winter months (Table 1).

TABLE 1

Acres required per animal unit year long by range conditions

RANGE CONDITION	AREA PER ANIMAL UNIT	MOST DESIRABLE GRASSES
	<i>Acres</i>	<i>Percent</i>
Excellent.....	10	75-100
Good.....	15	50- 75
Fair.....	20	25- 50
Poor.....	30	0- 25

An increase in the acres per animal unit is made in accordance with the density of the timber stand. For example, if an excellent condition range had a fifty percent cover of grass and a fifty percent cover of trees, it would require twenty acres per animal unit.

Management practices which are worked into a conservation plan depending on the needs shown by the range condition survey are:

1. Regulate grazing as to proper class of stock, proper numbers of stock, and proper season of use to utilize approximately one-half of the growth of the better forage plants. This practice requires the exclusion of hogs and goats from the range. It also requires that cattle numbers be kept in balance with the range forage production. While research (Campbell and Cassady, 1951) and reports from stockmen point to a six-months grazing season from March 15 until September 15 as being the most desirable, yearlong grazing can be practiced under careful management with supplemental feeding during the winter months.

2. Maintain grazing distribution by rotating mineral, salt, and feeding locations, proper location of stock ponds or wells for stock water, adequate fences, and seeding and fertilizing strips (Silker *et al.*, 1950) in key range areas. Poor grazing distribution is one of the major problems on the forest range. The larger the fenced unit, the more severe the problem seems to be.

3. Supplement with minerals, feed, or pasture during periods when the range forage is deficient.

Additional phosphorus and calcium supplement on the range is a constant need (Campbell and Cassady, 1951). Good legume hay fed on the range for 120 to 130 days at the average rate of 8 pounds per day per animal unit seems to be one method of furnishing adequate protein supplement. The feeding period should start not later than November 15 and extend into March.

Alyceclover and lespedeza are grown locally by operators who have haying equipment of their own or where hay

can be put up on a contract basis. Alfalfa hay is trucked in from West Texas and used by a few of the larger stockmen. All of these hays compare closely in value. One-half ton of hay per animal unit is recommended as the minimum yearly winter protein supplement when hay alone is fed on the range.

Winter pastures of oats, ryegrass, and fescue are becoming more common. Several soil conservation districts own pasture seeding and renovating equipment which is made available to landowners at a small fee per acre.

Tall fescue, a relatively new pasture plant in Louisiana, is showing promise as a perennial winter pasture plant. Pastures now going into their fourth year are proving its value. This grass requires very heavy fertilization and careful management. District cooperators who have used it successfully say it is well worth the expense and care, but they admit there is much to be learned about growing it and getting the most out of it. Best results have been obtained from tall fescue pastures when a legume was used with the grass.

The feeding of cottonseed cake, meal, or range pellets is quite common, but the feeding of these concentrates is often delayed too late in the fall and then sufficient amounts are seldom fed. This results in loss of condition of the animals and may lead to pine damage from grazing.

4. Control of undesirable vegetation is often necessary. Perennial weeds and scrub hardwoods must be controlled by chemical treatment, cutting, or mowing. Control of scrub hardwoods for range improvement alone may prove too costly, except on special areas which are valuable because of their location or in connection with woodland improvement. Ammate is the most common chemical used for this purpose (Peevy, 1949).

Weed control on partially improved areas can be accomplished by mowing or by spraying with 2,4-D. Boom-type sprayers mounted on tractors can cover areas too rough for conventional mowers and can treat more acres per day. Spray control with chemicals must be carried on when damage to clovers and other legumes can be kept to a minimum.

TYPES OF LIVESTOCK OPERATIONS

The types of livestock operators who use forest range and have been assisted in range conservation work are:

A. Small landowners who use open range.

B. Large operators who depend mainly on privately owned or leased range.

C. Livestock farmers who use range only to supplement their pastures.

D. Stockmen who use open range in conjunction with coastal marsh range on a seasonal basis.

A. Small landowners who use the open range. This type of operation is responsible for many of the problems in the longleaf belt. People who own as few as forty acres may run sizeable herds of cattle, sheep, or hogs on the adjacent open range. Their operation costs little, hence they are reluctant to invest anything for improvements. Soil Conservation Service technicians have been successful in getting a few of these people to use farming and livestock practices on their own land which results in better forest range conservation.

Usually assistance is first requested for a stock pond or a few terraces. While rendering such assistance the technician has an opportunity to suggest improved pasture practices or the planting of lespedeza or some other adapted legume for hay. He has an opportunity of pointing out the values and limitations of the different range plants. Each time he assists the landowner in applying a

conservation practice, he is in a position to carry the operator farther towards a complete conservation program. More progressive farmers are showing the slower ones that they can actually help themselves by doing a good conservation job. One such man in the Calcasieu Soil Conservation District has influenced several of his neighbors and many other people towards growing better pastures, producing more hay, eliminating range hogs and practicing better fire protection. When a small operator plants costly improved pastures, he usually wants to get rid of range hogs. Hogs can ruin an improved pasture as readily as they root out young pine trees.

B. Large operators who depend on fenced range, either operator-owned or leased, are not as numerous as the first type. Usually running a cow herd of several hundred head, they either own their land or have long term leases with the larger land or lumber companies. Owner-operator units usually produce their own hay and improved pastures. Lessee operators usually buy hay and concentrates for use during the winter months.

A few of the large land companies are actually carrying on livestock operations on their own land with their own cattle along with reforestation. Other companies have large units fenced hog proof, including plantations, and are giving grazing free or on a small fee basis to small stockmen in return for fence maintenance, fire protection, etc. They feel that the cost is justified by better relations which result in faster timber development.

The large owner-operator on fenced range units is often quick to accept and apply conservation practices. He is successful because he realizes the limitations as well as the values of forest range and applies practices to overcome these limitations. He knows that winter feed is

essential, that the grass is deficient in phosphorus and calcium, and that wild-fire burning often destroys feed. He is most apt to accept the best methods and apply them to his own operation.

Several are using fertilized and seeded strips for grazing and fire protection. Another, who uses plowed fire lanes, puts them on the approximate contour.

Perhaps the final test is that several have carried on successful livestock operations while developing a good stand of second-growth longleaf pine from natural reproduction.

C. Livestock operators who use the range to supplement their improved pastures often look at range forage in an uncomplimentary manner. They have operated beef or dairy herds on improved pastures, hay, and grain produced on the farm. Many others realize however, what good insurance the range forage was to them during the past severe winter and also the past summer which was so dry that many improved pastures made little growth. By coordinating the use of the range and their improved pastures, a more economical operation can be realized.

A few men in this group whose places are situated along the southern edge of the longleaf area near the rice section use rice stubble fields for fall grazing, pastures and hay for winter, and move to the range for the spring and summer months. Rice stubble will give approximately an animal month of grazing per acre when the rice is harvested in the early fall.

D. There are few stockmen who use the forest range in conjunction with the coastal marsh ranges on a seasonal basis. However, their operation is usually a large one and may run several hundred head of cattle making use of the cutover range in the spring and summer. These herds are trailed south in October a distance of approximately sixty miles to

the salt-marsh range along the coast. The drive requires about four days. The cattle swim the Intracoastal Canal, a sizeable waterway, but loss of even a single head is unusual.

The salt-marsh range is excellent winter range, and cattle go through until April 15 without additional feed of any kind. Many cows bring calves during this period. Due to the severe mosquito infestations in the summer months, and the decrease in forage value as the plants mature and become tough, cattle are moved back to the cutover ranges for spring and summer grazing. Range grasses on the forest range have had a month to make their early spring growth and are at the height of their value when the cattle arrive.

One such operator owns both of the ranges he uses and has them fenced. Some of the area in the cutover range has been further improved by fertilizing and overseeding lespedeza.

SUMMARY

The Soil Conservation Service, working with soil conservation districts in Louisiana, is helping landowners to apply better management practices on their forest ranges. Good range management practices implement woodland development

and permit more efficient use of improved pastures. Based on range-condition inventories, these practices include proper number and class of stock, right season of use, improved grazing distribution, provision for adequate supplements during periods when the range forage is deficient, and control of undesirable vegetation. Drawing from research results and stockmen-tested practices, this program is revised periodically as more information becomes available. While additional research is needed on all phases of the forest range, the need to apply proven practices is just as great. Progress is being made in getting these practices applied by stockmen with the assistance offered through their soil conservation districts.

LITERATURE CITED

- ALLRED, B. W. 1950. Practical Grassland Management. *Pub. by Sheep and Goat Raiser Magazine*, San Angelo, Texas. 307 pp.
- CAMPBELL, ROBERT S., AND JOHN T. CASSADY. 1951. Grazing Values for Cattle on Pine Forest Ranges in Louisiana. *La. Expt. Sta. Bul.* 452, 31 pp.
- PEEVY, FRED A. 1949. How to Control Southern Upland Hardwoods with Ammate. *U. S. Dept. Agr. M-5296*. 7 pp.
- SILKER, T. H., L. E. CRANE, AND J. S. SMITH. 1950. Effects of Fertilizers and Seeding on Grazed Firebreaks. *Tex. Agr. Expt. Sta. Prog. Rpt.* 1247, 5 pp.