

The Forest Range in Southern Agriculture

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A SYMPOSIUM on "The Forest Range in Southern Agriculture" was held at the 46th Annual Convention of the Association of Southern Agricultural Workers in Baton Rouge, Louisiana, in February. Six papers were presented as follows: The Scope of Southern Forest Range Work, by R. S. Campbell; Utilizing Forage on Longleaf Pine Forest Ranges, by John T. Cassady; Pastures and Feed Crops to Round out Forest Grazing, by H. W. Bennett; Fire Protection in Southern Pine Lands by the Use of Wide Improved Pasture Strips, by L. T. Nieland; A Study of Species, Seeding Methods and Fertilizing Practices for Use on Piney Woods Ranges, by Glenn W. Burton and A. C. Mathews; and, Wildlife: Its Relation to Forestry and Grazing, by Bryant A. Bateman.

These topics may indicate the direction of current thinking and research related to forest grazing problems of the South. Chiefly because of burning practices, there have been conflicts between cattle and timber interests in the region ever since the first heavy cuttings made it necessary to regenerate timber stands. Fire has received considerable attention in past research, and its applications as a management tool in silviculture, fire control, and forage improvement are now fairly well understood.

That grazing reduces fire hazards, and in this respect can benefit the forest, is also generally recognized. But where grazing is accompanied by extensive burning for forage improvement, at the expense of other forest values, conflict still exists. Recognizing that timber and water are the

primary products of forest land, the symposium dealt with specific possibilities for improving cattle performance, and integrating cattle and wildlife with timber production in one of the major forest types. Perhaps it is significant that burning for forage improvements was not a topic of discussion.

There are unique aspects of forest grazing in the section of the South to which the symposium applies. Customs established in the days when timber was plentiful and cheap still persist. Local laws recognize unfenced forest land as free "open range" in many areas where a relatively small proportion of the land is cultivated. Most of the forest land is owned by companies or individuals whose primary concern is timber production. But, in accordance with age-old custom, their lands are often grazed by the livestock of numerous small farmers. The range is commonly burned to improve forage quality, a practice which usually damages the forest more than it helps the livestock. To exclude grazing, however, would require expensive fencing. It would also deprive neighboring farmers of part of their income. The landowners realize that there are many causes of fire, and that they must have the goodwill of local residents, or else a very effective fire control system, to avoid serious losses. Under such conditions it is usually to their advantage to cooperate with the local farmers.

Campbell's paper points out that forest grazing, whether good or bad, is an established practice and a substantial item in the rural economy of much of the South. The bulk of 15 million cattle, 2 mil-

lion sheep and goats, and 10 million hogs graze on the forest range at some time during the year. Such use, however, is often incompatible with the primary value of forest lands for timber production and water protection. The proper place of forest grazing varies considerably in different parts of the region and between the broad forest types which together occupy 187 million acres from Virginia to East Texas and Oklahoma. Grazing has a very

acres) of the Coastal Plain, which is the principal forest grazing type in the South. This type is characterized by numerous park-like openings, relatively open second-growth forests, and high yields of relatively low-quality grass forage. The herbaceous vegetation may be classified under two broad forage types: wiregrass and bluestem. The wiregrass type occurs mainly to the east, and the bluestem type to the west, of the Mississippi River delta.



Grade cattle on unfenced wiregrass range in the longleaf-slash pine forest type in southern Georgia. The appearance of the grass and brush indicates that this range had been burned approximately 20 months before being photographed in October.

limited place in the upland hardwoods type (36 million acres) and the shortleaf-loblolly pine-hardwoods type (75 million acres). Here the low grazing values usually do not justify the risks of damage to tree reproduction, soils, and watersheds. In the bottomland hardwoods type (38 million acres) grazing values vary from very low to very high, but conditions and problems related to grazing in this type are quite different from other types and it was not included in the discussions.

The symposium was concerned only with longleaf-slash pine type (38 million

Grazing practices and problems are quite similar in both types.

Cassady reported on grazing conditions and research in the bluestem forage type and longleaf pine forests west of the Mississippi River. Here, forest range supports the bulk of the local beef cattle as well as goats, sheep and woods hogs, commonly on a yearlong basis. The goats, sheep and hogs should be eliminated from the forest, however, because they damage pine reproduction. About two-thirds of the annual forage growth occurs in the spring, from about March 15 to June 15. It is only

during this spring growth period that the native forage contains enough protein and minerals to satisfy the requirements of breeding cows and growing animals. Consequently, the annual herd productivity is rather low. Cattle make good gains in the spring but gain very slowly if at all during the summer, and lose considerable weight in winter. Weight losses can be checked, however, by supplementing the native forage with a good ration of cottonseed meal or some other highprotein feed. It follows, then, that forest range is a cheap source of good forage during the spring but at other seasons its quality is not adequate for high cattle performance. Obviously the range would have most value if used in conjunction with improved pastures and other feeds necessary to provide adequate nutrition yearlong.

Winter grazing can be produced economically on farm land, according to Bennett's report, by a procedure which has been tested experimentally for two years in Mississippi. One acre of heavily fertilized, fall-seeded oats have provided ample grazing for a 400-pound beef animal from November 15 to March 1. Adding crimson clover with the oats prolonged grazing until May 1. Net profits of \$18 to \$50 per acre have been obtained from beef animals with this system.

Introducing better forage species into the range is another possibility for increasing the productivity of range herds. Nieland advocates this approach for combining improved grazing with fire protection. He suggests a fire control system composed of wide strips of improved pasture around and through forest tracts. His premise is that the high quality forage on the strips would not only help to eliminate the common practice of burning to improve native forage, but would also increase cattle profits and thereby help defray the costs of fire control. Besides the obvious benefits to timber production,

wildlife would presumably be encouraged by less wild fire, less competition from livestock, and a greater variety of food plants. The idea seems to have considerable merit.

Practical methods of introducing improved forage species into native southern range were included in the paper by Burton and Mathews. They report three years' results of comprehensive studies on the wiregrass type in southern Georgia. These investigations have shown that improved species can be successfully established without cultivation, by broadcasting the seed at appropriate seasons onto freshly burned and fertilized range. Heavy grazing after seeding is essential, in this method, for keeping down competition from native grass. Both the burning and the fertilizing attract cattle and bring about the desired heavy grazing. Chopping or disking, to destroy the native vegetation, facilitates the establishment of introduced species, particularly grasses. Some such cultural treatment seems necessary where the range is very brushy. Three grasses (Carpet, Dallis, and Common Bahia) and three legumes (Louisiana white Dutch clover, Common Lespedeza, and Big Trefoil) are showing considerable promise for improving native range in this region.

Game and wildlife, natural by-products of forest lands, have such an important place in the American heritage that they deserve consideration in any extensive land-use program. Bateman points out that forest game can be maintained in reasonable numbers without noticeably decreasing timber yields or cattle profits. Light or moderate grazing by cattle does not seriously interfere with wildlife, because cattle graze primarily upon grass herbage while the principal southern game species depend upon other forms of food. Under very heavy grazing, however,

cattle compete with deer for winter browse, with quail and turkey for legumes and other seed-bearing herbs, and even with squirrel for some of the berries and fruits which tide them over the spring and summer months between crops of mast. Such competition will be prevented by management practices which provide the level of nutrition necessary for profitable cattle production.

Forest range is now making only a small fraction of its potential contribution to southern agriculture. Its value can be ex-

pected to increase, however, with the adoption of improved management practices and the development of the southern livestock industry. Because the problems involved in forest grazing have so many ramifications, they call for coordinated effort in the fields of forestry, range management, animal husbandry, agronomy, and perhaps others such as wildlife management. That a start has been made in such a coordinated approach is perhaps the most significant implication of the symposium.