A Conservation Program for Grazing Woodlands in the Southeast

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One-seventh of the beef cattle in the United States are in the nine Southeastern States, Table 1 (Lyles, 1962). A large percentage of these graze native range.

Seventeen million acres of rangeland and over 30 million acres of woodland are being grazed (Table 2). These areas are expected to increase as more operators realize that livestock can graze most woodlands without damaging the tree crop.

Improved pastures are very important to a well rounded livestock operation in the southeast, but at present a large percentage of the total acreage that is in improved pastures is used to support dairy herds.

Livestock production varies with each individual operator. The average calf crop is about 65 percent but will range from a high of 85 percent to a low of 50 percent depending upon the level of livestock management. An 80-percent calf crop and 400-pound calf are considered good production from herds grazed yearlong on native forage, (Halls and Duvall, 1961).

The population of the United States is presently consuming approximately 85 pounds of beef per person annually. This compares to 66 pounds a decade ago, and 56 pounds twenty years ago. Livestock inventories on farms and ranches have reached an all time high of almost 100 million head, an increase of over 10 million head in the past decade. Two-thirds of the total are beef cattle (Lyles, 1962). At the same time beef and veal imports have also increased 500 percent over the past four years.

To keep pace with our growing population, the consuming market can easily sustain an increase of nearly two million head of livestock annually.

Table 1. Forage Resources and Beef Cattle Numbers by States in the Southeast[1]

Southern States	Improved Pastures	Woodland Grazed	Other Pastures Not Woodland or Cropland	Beef Cattle 1,000 head
Alabama	848,334	3,277,899	2,234,490	1,269
Arkansas	330,842	3,066,773	1,617,847	1,014
Florida	1,201,611	5,108,306	4,121,562	1,272
Georgia	682,333	3,065,538	1,374,100	1,126
Louisiana	407,602	7,749,694	1,689,433	1,407
Mississippi	798,875	4,164,110	3,160,563	1,501
North Carolina	463,721	1,024,541	1,040,167	433
South Carolina	175,568	927,075	445,959	371
Tennessee	272,329	1,744,013	1,484,776	1,205
	5,181,215	30,127,949	17,168,897	9,598

[1] Forage resource acreage figures compiled from 1959 census of Agriculture-Preliminary Release dated December 1960. Current beef cattle figures taken from March, 1962 issue of American Cattle Producer

The Southeastern States will be expected to play a bigger role in the future beef cattle industry than they have up to this time because native and introduced forage plants respond to good management and produce well on southern soils under normal climate conditions.

If the beef cattle industry develops in the Southeast as expected, it will put greater pressure on the land, thus intensifying the need for conservation programs to prevent abuse and deterioration of soil, water, and plant resources.

The grazing program planned and being carried out on the Crown-Zellerbach Corporation holdings in Beauregard Parish, Louisiana illustrates most of the basic principles of good grass management on woodland forage sites that apply throughout the Southeast.

This operation is in the Calcasieu Soil Conservation District, Southwest of Deridder, Louisiana. It comprises 27,480 acres in the heart of Louisiana's Longleaf pine belt. This particular area is often referred as the

Table 2. Forage Resources and Beef Cattle Numbers by Geographical Region[1]

Region	Improved Pastures	Woodland Pastures	Other Pasture Not Woodland Or Cropland	Beef Cattle 1,000 Head
Northeast	1,634,751	5,054,830	9,629,705	2,015
Southeast	5,181,215	30,127,949	17,168,897	9,598
Cornbelt	2,299,514	18,939,826	20,598,100	18,284
Northern Great Plains	1,608,187	3,408,516	134,714,596	12,474
Southern Great Plains	9,947,078	20,635,139	189,651,874	19,527
West	2,925,997	15,448,527	92,770,692	7,793
TOTALS	23,596,742	93,610,787	464,533,864	69,691

[1] Forage resource acreage figures compiled from 1959 census of Agriculture-Preliminary. Release dated, December 1960. Current beef cattle numbers taken from March, 1962 issue of American Cattle Producer.

FIGURE 1. Cattle grazing a four year old slash pine plantation on Crown-Zellerbach Corporation land. Under conservation management the land produces timber and livestock.

Flatwoods of the Forested Coastal Plain.

Climate is sub-tropical. Precipitation averages 54 inches and, except for September and October which are often dry, is fairly well distributed throughout the year. The average growing season is 259 days and extends from March 7 to November 20 (U. S. Department of Agriculture, 1941). Approximately 80 percent of the forage production occurs by July 1 (Soil Conservation Service, 1959).

Two woodland forage sites occur on the Crown-Zellerbach acreage. The medium textured upland site comprises approximately 95 percent of the area. Principal soils in this site are Beauregard and Caddo silt loams. Site index for slash pine ranges from 80 to 90 (Loftin, et al, 1959). The best forage grasses on this site are pinehill bluestem *(Andropogon divergens)*, switchgrass *(Panicum virgatum)*, Big bluestem *(Andropogon gerardi)* and beaked panicum *(Panicum hians)*. Secondary forage plants which increase with overgrazing are slender bluestem *(Andropogon tener)*, low panicums *(Panicum spp.)*, cutover muhly *(Muhlenbergia expansa)*, and Florida paspalum *(Paspalum floridanum)*. Waxmyrtle *(Myrica cenfera)* and Elliott blueberry *(Vaccinium elliotti)* are common shrubs (Soil Conservation Service, 1959).

Bottomland site comprises the remaining five percent of the unit. Soils are of local alluvial material and are subject to frequent overflow. Site index for slash and loblolly pine is 100 (Loftin, et al, 1959). Climax vegetation for this site is mixed hardwoods and pine. Forage production is low due to the competition from trees and shrubs. Important forage grasses are longleaf uniola *(Uniola sessiliflora)*, wildryes *(Elymus spp.)* and some switchcane *(Arundinaria tecta)*. Winter is the primary grazing season for this site.

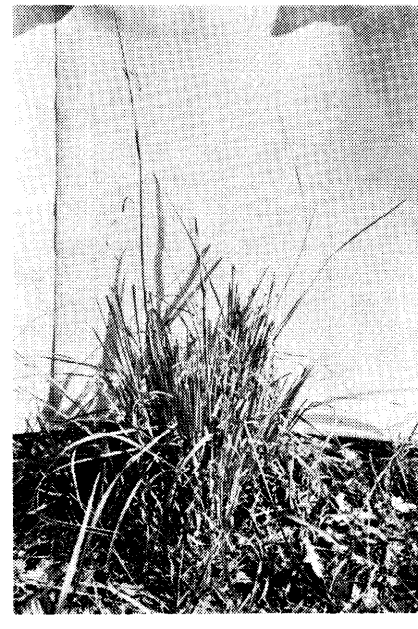

FIGURE 2. A properly grazed pinehill bluestem plant. Conservation management permits grazing at this intensity without harm to the forage or tree crop. The proper amount of grazing also reduces the fire hazard to young trees.

Protein and mineral content of the forage is such that livestock gain weight for about four months in the spring and early summer, maintain weight for a similar period of time in the summer and fall, and lose weight during late fall and winter. Phosphorous content of most species is below the minimum requirement throughout the year (Campbell, et al, 1951; Wichman and Fox, 1950; Williams, et al, 1955).

Proper stocking (rates) on the medium textured upland site varies from 12 acres per animal unit yearlong to more than 50 acres. This variation is due to forage condition class and timber canopy (Soil Conservation Service, 1959). Forage production varies by seasons. Total air-dry herbage production on cut over land dominated by pinehill bluestem varied over a four year period from 1,519 pounds per acre to 3,838 pounds per acre (Cassady, 1953). On creek bottomlands it has averaged approximately 400 pounds per acre (Cassady and Campbell, 1951).

Crown-Zellerbach obtained this land in 1957 when 94 percent of it was in an open, cut-over condition. The first job was to harvest the scattered residual Longleaf trees. A five year planting program was then launched. The planting has been completed except for some minor, odd areas. A decision on an operating rotation, pulpwood versus saw-log, is still pending future timber markets.

In 1957, shortly after acquiring the land, the company requested Soil Conservation Service technicians assisting the Calcasieu Soil Conservation District to help in developing a conservation plan for the entire area and covering grazing in relationship to tree production. Prior to this

time the areas had been used for many years as open range. SCS personnel and the company's district forester developed a plan mutually beneficial to both the company and the local livestock people. Most of its features are now in effect.

The entire acreage is leased to approximately 20 local cattle and sheep raisers (Figure 1). The company is glad to permit livestock grazing because it is felt that the reduced fire hazard more than pays for any damage that the animals may do to the trees. They also realize that the native forage will produce livestock economically if managed properly.

The number of animals each leasee can run is based on a forage survey made by the SCS. This survey considered condition of the forage on each site and the effect of tree canopy on the understory vegetation. The planned objective is to graze at an intensity that will not harm the range vegetation or the trees. This can be achieved if no more than half the annual herbage of key forage plants is harvested (Figure 2). Pinehill bluestem is the key species on which this determination is made. Observations are made periodically by livestock operators and company employees to determine proper grazing. Forage adjustments are made annually based on degree of grazing use.

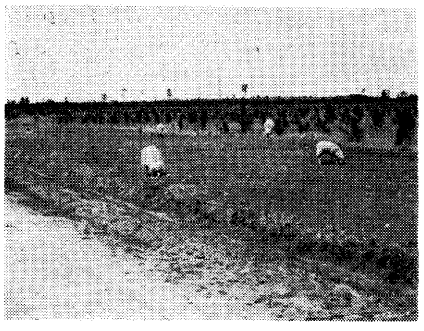

FIGURE 3. Sheep grazing a fertilized and seeded firebreak. Close grazing retards wild fires and the barriers aid in grazing distribution, and increase the quantity and quality of forage.

FIGURE 4. Timber, grass and cattle on Lutcher and Moore Lumber Company lands in Vernon Parish, Louisiana. Maximum use of soil resources is being achieved in producing timber and livestock.

Areas planted to slash pine are not grazed by cattle until June 1 following planting. Sheep are kept off until the trees are in their second growing season. Hogs are excluded completely.

This plan of management is made possible by a system of fences. The entire tract is cross-fenced into 10 separate pastures of varying sizes.

Crown-Zellerbach was one of the pioneers in western Louisiana in the use of fertilized and seeded firebreaks (Figure 3). To date they have installed 103 miles of these firebreaks, amounting to 413 acres. They are 50 feet wide along the boundary and 25 feet or wider inside. Originally carpet grass *(Axonopus affinis)* and Kobe Lespedeza *(Lespedeza striata)* were seeded on the breaks. All plantings the last three years have consisted of Pensacola bahiagrass *(Paspalum notatum* var. *saurae* Parodi), and lespedeza. Initially fertilized with 1000 pounds of basic slag per acre, firebreaks are maintained by fertilizing every three to four years with 150 pounds of superphosphate and mowing with a rotary mower. Livestock tend to graze these firebreaks closely because the forage quality is higher than on the native range. This creates a barrier to wild fires but leaves sufficient sod to control erosion. Common disked firebreaks often erode rather severely. These firebreaks also improve the distribution of livestock grazing and help to improve the livestock diet.

Sixteen livestock ponds provide adequate water in the company pastures and aid in evenly distributing grazing. All ponds have been stocked with fish to provide recreation. The stockmen also use salt-mineral supplements to aid distribution.

Adjustments in livestock numbers, pastures grazed and other details of management are worked out annually by the company foresters and the stockmen. The company conducts a tour in July or August each year for this purpose.

Other large landowners such as Lutcher and Moore Lumber Company in western Louisiana are carrying out similar grazing management plans (Figure 4) (Shiflet, 1962).

Crosby Chemical Company at DeRidder, Louisiana has some of their woodland under a similar

management plan. In 1961 they established 65 miles of fertilized and seeded firebreaks amounting to 130 acres.

B. A. Graham and Son produce cattle and timber on about 2,000 acres in Vernon Parish, Louisiana. The SCS assisted them several years ago in developing a conservation plan which provides for proper management of their forage and tree crops. The plan involves proper stocking, cross fencing, deferred grazing, fire control, timber thinning, natural reseeding of longleaf pine and other practices.

B. A. Graham says that his cattle have been making him more money than his trees up to the present time and has figures to support his claims. He realizes however, that future returns from timber will be higher as their woodland management plan becomes effective. This is a good example of how range livestock can carry the operation while the owner is waiting for income from timber.

The Southeast can meet the demand for more beef by grazing the 30 million acres of woodlands according to sound conservation plans that allow for land capabilities, trees, grass, water, and livestock.

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