

## Rangeland Research at Manitou<sup>1</sup>

P. O. Currie

SEVENTEEN YEARS of cattle grazing on ponderosa pine-bunchgrass ranges show that a moderate grazing rate of 30-40 percent use of the dominant grasses and sedges was best for sustained forage and livestock production. Plant vigor of the principal bunchgrasses, *Festuca arizonica* and

<sup>1</sup>*Editor's note:*—Since the topic was covered in a film presentation, it was deemed desirable to include an abstract in the *Proceedings* of the meeting.

THE AUTHOR is with the Rocky Mountain Forest and Range Experiment Station, Fort Collins, Colo.

*Muhlenbergia montana* was somewhat comparable on lightly (10-20 percent use) and moderately grazed ranges but decreased appreciably on heavily grazed ranges (over 50 percent use). Perennial grass and sedge production under moderate, light, and heavy grazing was 335, 446 and 148 pounds of air-day herbage per acre, respectively. Under light and moderate use, the better forage species were maintained. With heavy use, low value forage plants increased. Root systems of desirable grasses on heavily grazed range were reduced in depth of penetration

and volume compared with those moderately grazed or protected from grazing. Yearling heifers grazed June through October had average weight gains of 210 pounds on lightly grazed ranges, 201 pounds on moderate use ranges, but only 151 pounds on heavily grazed ranges. Gains on heavily used range were consistently below those for the other two treatments. Based on weight gains, market values, and operating costs, net returns per section for every \$100 from moderate use was \$73 for light use and \$55 from heavy grazing.



## Highlights of Recent Results of Range Research in Southern Florida

J. B. Hilmon, C. E. Lewis,  
and J. E. Bethune

FOREST GRAZING research in the Southeast is being conducted from two locations in the pine-wiregrass type: near Tifton, in southern Georgia, and Fort Myers, in southern Florida. At each of these locations studies are aimed toward resolving some of the problems of integrating forage, timber, and wildlife habitat management. The primary purpose of this paper is to report results of two studies integrating forage and timber management: one of cattle damage to planted pines, and another of the responses of vegetation, including planted slash pine, to applications of rock phosphate. Both studies are being conducted on the Caloosa Experimental Range in southern Florida.

The 1600-acre range was divided into twelve 90-acre experimental pastures. These pastures were stocked to allow 20 acres per cow per year during a 2-year calibration period. In January

1958 three rates of stocking—allowing approximately 15, 20, or 33 acres per cow per year—were established. Adjustments in these stocking rates are made periodically to adjust for variation in herbage production to allow approximately 70 percent, 50 percent, or 35 percent use of pineland three-awn (*Aristida stricta*) on recently burned ranges.

Each experimental pasture is burned every two years under a system whereby six pastures are burned each year. Rotation grazing is practiced to permit maximum utilization of more nutritious herbage on recently burned ranges. Each year cows graze recently burned ranges 7 months and "rough" ranges 5 months. This layout served as the foundation for a study of cattle damage to pines planted on ranges subjected to the varying intensities of grazing.

### Cattle Damage to Planted Pines<sup>1</sup>

The problem of cattle damage to planted pines is especially important in south Florida where most of the

1 million beef cattle at some time of the year graze over much of the available 10 million acres of forest rangeland. Landowners want to know how much damage can be expected from cattle grazing in their forest plantations, how best to prevent excessive damage, and what, if any, are the long-term effects of cattle grazing on survival and growth of planted trees.

A study was begun on the Caloosa in January 1959 to investigate the nature and magnitude of cattle damage to longleaf pine (*Pinus palustris*), south Florida slash pine (*Pinus elliottii* var. *densa*), and typical slash pines (*Pinus elliottii* var. *elliottii*) planted in pastures grazed at three intensities. Range vegetation in six of the experimental units had been burned off about 60 days before planting; these units were designated "recently burned." Cattle were grazing these units at the time of planting. In the other six units

<sup>1</sup>A cooperative study between the Station, Babcock Florida Company, and Florida Board of Forestry.

THE AUTHORS are range conservationists (research) and research forester, respectively, Southeastern Forest Expt. Sta., Forest Service, U. S. Dept. Agric.