Cattle Performance on the Grazing Systems on the Arizona Strip

Lee E. Hughes

Vegetation response to grazing systems (rest-rotation and deferred-rest rotation grazing systems) on the Arizona Strip was discussed at an earlier date in *Rangelands*. That article discussed the effects of utilization levels on allotments with rest-rotation grazing systems. It emphasized that low to moderate utilization levels are necessary to make grazing systems work in the Southwest.

However, animal response to these grazing systems in this arid zone is necessary to get the complete story on rotation grazing systems in the dry Southwest.

Wildlife reaction data to the grazing systems are incomplete; however, livestock ranchers with records and good memories have some interesting data on how their cattle have evolved with the grazing systems. The data from ranches show a mixed reaction to these grazing systems, which stresses more than ever the necessity of designing allotment specific grazing systems. Allotments of land and their animal constituents can be yielding or adamantly unyielding to general grazing schemes of man and his government.

The Method

The Bureau of Land Management in gathering data for the Shivwits Resource Area's Grazing Management Environmental Statement inquired of ranchers by signed statements and/or face-to-face interviews of how their cattle reacted to grazing systems. Of the 28 allotments under grazing systems, ranchers from 10 of those 28 provided data. However, one of those ten was from the Vermillion Resource Area.

The inquiry asked the rancher to estimate or provide data of calf weights and crops prior to the grazing system implementation, and the same data a few years after grazing system implementation. The data range from 4 to 10 years after grazing system implementation, and up to 7 years before grazing system implementation.

The Results by Allotment

The Beaver Dam Slope Allotment, a deferred rotation system, showed an average of 22% increase in calf crop. As it's only used during the winter spring period, no calf weights data are provided. The calves gain their weight in other areas later in the year.

The Lower Hurricane Allotment, a deferred-rotation allotment, showed a 5% increase in calf crops and at the same time showed a 20-pound decrease in calf weights. Virtually, no change, as the calf crop increased 5%, but the calf weights decreased 5%.

Little Tank Allotment, a rest-rotation system, showed no change in calf crop and calf weights, 90% and 400 pounds, respectively.

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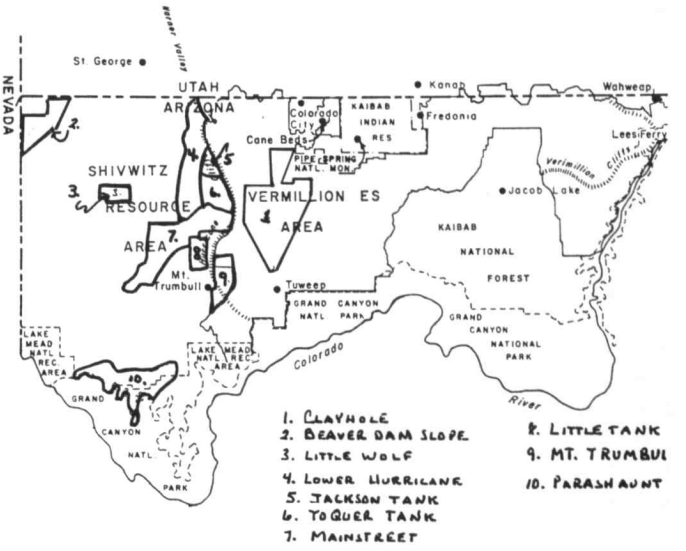

Arizona Strip

Little Wolf Allotment, a rest-rotation system, showed a 10% increase in calf crop and a 22-pound increase in calf weights. A major portion of these increases must be attributed to large chainings and plowings, which increased usable forage in otherwise low forage production areas.

Jackson Tank, a rest-rotation allotment used only from fall to spring, showed no change in a calf crop of 90%.

Mainstreet Allotment, a deferred rotation system, which has seldom had its grazing system followed due to erratic water supplies, shows decreases in both calf crop and weights.

Cattle on the Arizona Strip, Pine Valley Mountains of Utah in background.

Calf crops have decreased by 15% and weights have decreased by 80 pounds.

The Parashaunt Allotment, a rest-rotation system, has shown a dramatic increases in calf crop of 25% and a 150-pound increase in calf weights. A large part of this increase is due to large pinyon-juniper acreages being converted into grasslands.

The Toquer Tank Allotment, a rest-rotation allotment, has shown a 10% increase in calf crop and a 25-pound increase in calf weights. This has occurred on native desert grassland.

The Clayhole Allotment, a rest-rotation allotment, has shown a decrease in calf weights since grazing systems implementation. The average calf weight prior to (7 years) rotation grazing was 415 pounds; 10 years of rotation grazing has yielded an average calf weight of 390 pounds—a major reduction in calf weights since rotation grazing.

The Mt. Trumbull Allotment, a rest-rotation grazing system, showed a 25-pound increase in calf weights. This allotment, however, has had large chainings of pinyon-juniper to convert trees to grass which contributes largely to increases in calf weights.

Conclusion

Of the above ten allotments five showed increases in calf crops, two showed no changes, two reported no calf crops data, and one reported a decrease in calf crops. Calf weights showed increases in four allotments, two allotments did not report calf weights, one showed no change in calf weights, and three allotments showed decreases in calf weights.

Calf weights decreased on the Clayhole and Mainstreet because on those allotments the maximum allowable use and overuse, respectively, in their utilization of each year's forage is occurring within their specific grazing systems. This is causing stress on the livestock. In other words, too much is being taken from too little.

The other allotments all show lower utilization of their forage resources, or if higher utilization of forage is occurring, it's on very good condition allotments and their calf crops and weights leave little room for improvement. The latter is the case of Jackson Tank and Little Tank. The former is the case in the other six allotments (Beaver Dam Slope, Lower Hurricane, Little Wolf, Parashaunt, Toquer Tank, and Mt. Trumbull).

Perennial Grass Improves with Moderate Stocking

W. James Rivers and S. Clark Martin

Records of range conditions on the Santa Rita Experimental Range near Tucson, Arizona, show that species composition of perennial grasses has improved since 1942 under moderate grazing. Mid-grasses such as Arizona cottontop *(Trichachne californica),* bush muhly *(Muhlenbergia porteri),* and black grama *(Bouteloua eriopoda)* increased by half. Short grasses such as Santa Rita threeawn *(Aristida glabrata),* slender grama *(Bouteloua filiformis),* and sprucetop grama *(Bouteloua chondrosioides)* decreased by about a third. Rothrock grama *Bouteloua rothrockii),* a short-lived, short-rooted perennial grass, decreased by over two thirds. Other perennial grasses showed little change.

The data, from three pastures differing in elevation and rainfall, are 5-year averages for the periods 1942-1946 and 1962-1966. Composition was determined by plant counts on paced transects.

All pastures were grazed yearlong 1942-1956. The low-elevation unit was cross-fenced in 1956. From 1957 through 1966 the north half was grazed November-April each year and the south half was grazed May-October. Neither of these half-year grazing schedules improved the range more rapidly than continuous yearlong grazing; if anything, responses of perennial grasses were less favorable under double stocking for half the year. The middle elevation pasture continued to be grazed yearlong through 1966. The upper elevation pasture was rested alternate summers (July-September) from 1957 to 1966. The vegetation responses under this schedule were no better than for comparable pastures grazed yearlong. Thus, improvement in species composition cannot be attributed to changes in grazing schedules in any of the pastures.

From 1942-1957 all three pastures were stocked at what at that time were considered to be conservative levels. The objective was to use 50% of the perennial grass herbage with animal numbers adjusted annually somewhat in accordance with forage supply. Average utilization of perennial grasses from 1942-1946 was 54% for the low elevation pasture, 52% for the middle elevation pasture, and 58% for the upper elevation unit.

In 1957 the utilization objective was lowered to 40% of the perennial grass herbage and a better basis for adjusting cattle numbers had been developed. During the 1962-1966 period, average use at the lower and middle elevation pastures was 49%. Use at the upper elevation was 42%, a marked drop from the earlier period. Utilization varied markedly from year to year even though cattle numbers were adjusted each fall. Since it was not economically feasible to adjust animal numbers strictly in accordance with forage supply, use was much heavier in years of low forage production than in years of higher production.

The lowest elevation, driest pasture, (3,000 feet elevation with average annual rainfall 11.5 inches) is dominated by desert shrub vegetation and was stocked at 10.6 acres/AUM (1962-66). At this elevation the percentage of mid-grasses in the stand increased from 53% to 67%. Santa Rita threeawn,

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