

Rest-Rotation Grazing on the Arizona Strip: An Observation

Lee E. Hughes

Editor's Note: We welcome this article because it shows that rest-rotation will not work under any and all conditions as some of its proponents claim.

Rest-rotation grazing has been proposed as a remedy for poor range conditions on many areas in the western range country. However, experience by the Bureau of Land Management (BLM) has demonstrated that this has to be exclaimed with qualifications and caution. Some allotments of rangeland placed under rest-rotation grazing by the BLM in the drier southwestern ranges have experienced accelerated rangeland deterioration. High utilization (65-80%) of the current year's growth of livestock forage combined with erratic rainfall are now identified as the alleged culprits that have undermined the efforts of range managers and their rest-rotation grazing systems.

Rangemen of the wetter and cooler climates claimed that rest-rotation would work regardless of utilization levels attained during the grazing cycle of rest-rotation. They claimed the rest cycle would insure ample recovery time for most forage species. This experience was then applied to our southwestern desert grass/shrub ranges, resulting in considerable trauma for vegetation, animals, and man. The trauma to vegetation by high utilization has been and is still being verified by university clipping studies demonstrated in various parts of the west.

The Vermillion Resource Area of the Arizona Strip BLM District in northwestern Arizona has had the experience of applying rest-rotation grazing with moderate levels of utilization (40-65% utilization) and high levels of utilization (65-80%) in erratic rainfall zones. As there is little that rangemen can do about rainfall, they have to look to manipulating utilization levels.

The Vermillion Resource Area is that portion of Arizona which lies between the Colorado River, the Utah/Arizona border, and the Hurricane Cliffs to the west. The area is characterized by broad valleys and plateaus with shrub/grasslands at the lower elevations and pinyon-juniper at the higher elevations mingled with occasional patches of ponderosa pine.

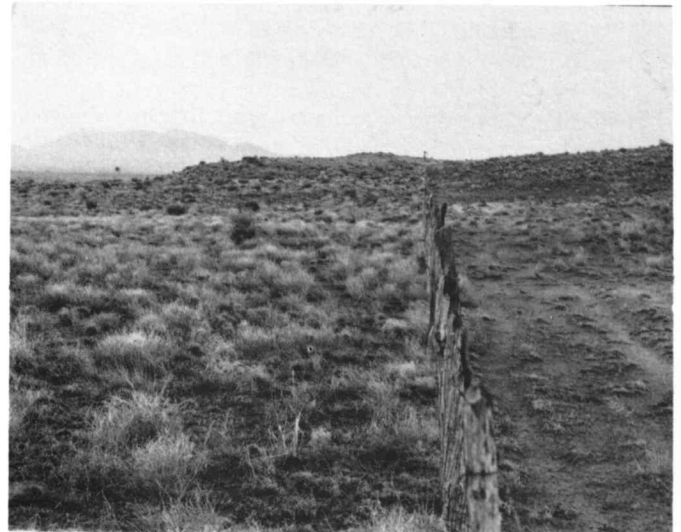
Rainfall and its occurrence are seldom at any set average; the usual is at dry or wet extremes. Rainfall with range from 5 to 20 inches in the high country, while the lower country will have a range from 3 to 10 inches. Temperatures go from hot during the summer to mildly cold during the brief winter.

Observations on the Vermillion Resource Area

This resource area has five allotments with sufficient vegetation trend and utilization data from rest-rotation grazing systems established long enough to show some effect of the practice. The allotments are Clayhole, Fern Tank, Tuweep, Cedar Knoll, and Vermillion Cliffs. Clayhole and Fern Tank have an upward trend.

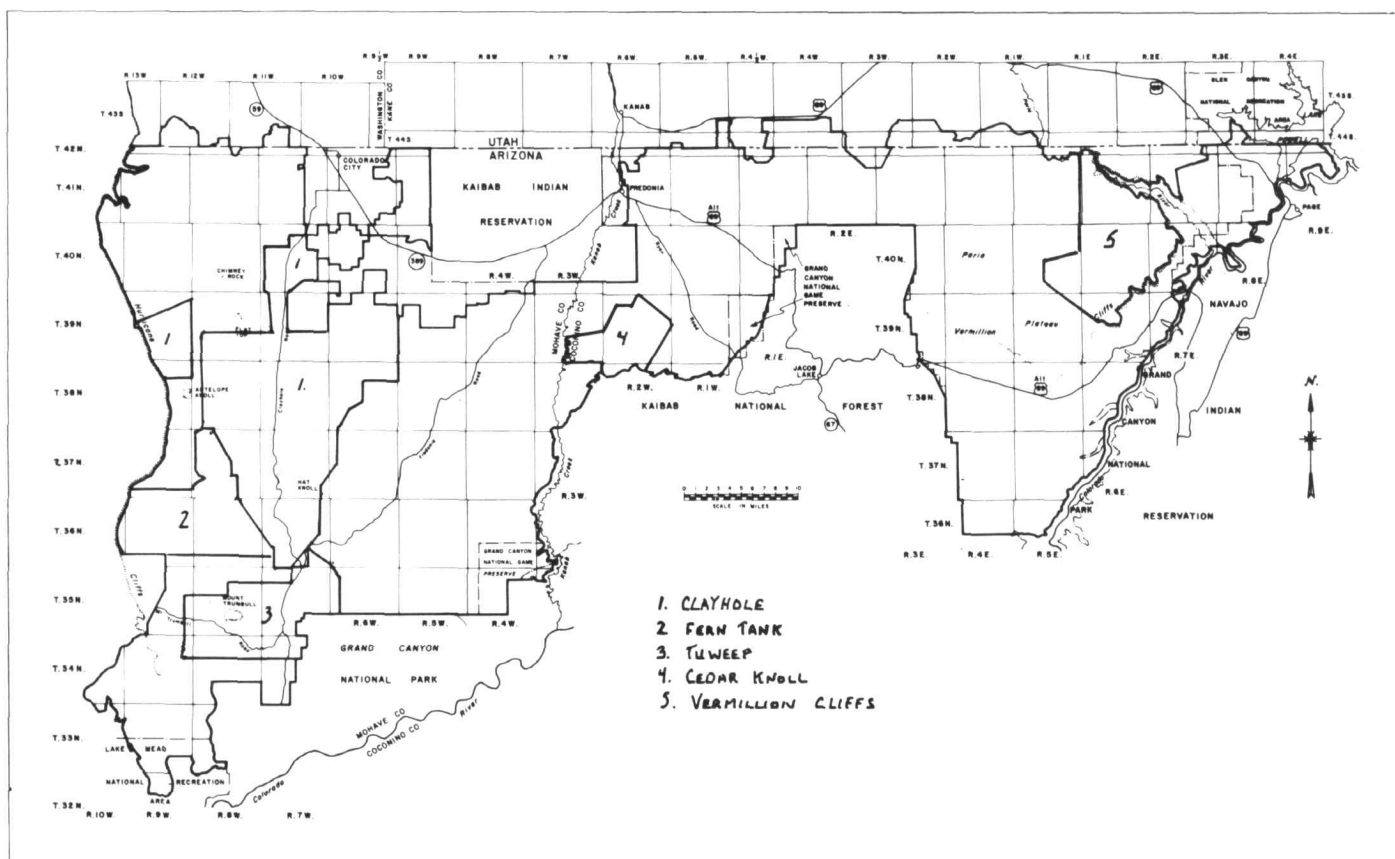
Tuweep has been static, while Cedar Knoll and Vermillion Cliffs have downward trends.

The total area of the resource area is 1,575,649 acres. The size of each of the allotments carrying out rest-rotation is: Clayhole, 178,560 acres; Fern Tank, 51,749 acres; Tuweep, 57,494 acres; Cedar Knoll, 17,951 acres; and Vermillion Cliffs, 116,321 acres. This is a total of 422,075 acres under rest-rotation grazing, or 27% of the resource area. The greater part of



Top Photo: Area on left is on rest-rotation grazing. Area on right is on continuous grazing.

Bottom Photo: Reservoir healed with grass. Fern tank, an allotment with a history of moderate use and rest, now is on rest-rotation grazing.



this resource area lies in Arizona, with a very small percent in southern Utah.

The cause for fluctuations of trend at significant levels is generally utilization levels by grazing animals, rainfall, or lack of it and the cyclic nature of some plants.

Fern Tank (4-pasture rest-rotation with fall-to-spring grazing period) and Clayhole (3-pasture rest-rotation with yearlong grazing period) have maintained an upward trend since 1968 and 1972, respectively. Fern Tank has had utilization levels between 51 and 55%. The Clayhole allotment has had utilization levels ranging between 51 and 74%; however, the 74% level occurred in 1970, and since then the level has averaged 55%.

Tuweep (5-pasture rest-rotation with yearlong grazing period) has had utilization levels ranging from 47 to 66% with an average of 55%. Trend appears static.

Cedar Knoll (3-pasture rest-rotation with fall-to-spring grazing period) has had utilization levels ranging from 48 to 74% in the last 6 years. The average utilization level has been 59%, which is high. Since the high levels of utilization have occurred recently, the trend is downward.

The recent history of Vermilion Cliffs (5-pasture rest-rotation with yearlong grazing period) is the same as that of Cedar Knoll, with an average of 58% utilization level and a downward trend.

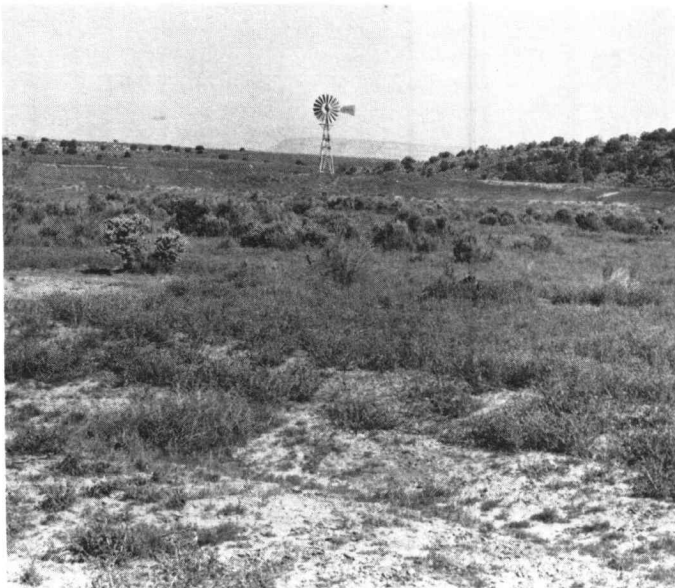
Another facet to be considered in trend is what is happening to species composition under the grazing systems. Desirable species to which their grazing systems are keyed include cool-season grasses, (Indian ricegrass, squirreltail, and wheat-grasses), warm-season grasses, (galleta, black and blue grama, sand dropseed, and alkali sacaton), and browse, (four-wing saltbush, cliffrose, winterfat, and bitterbrush).

Fern Tank's allotment grazing system has no cool-season grasses in the trend measurement areas; however, the warm-

season grasses are increasing as are the desirable browse plants. Clayhole's allotment grazing system shows a decrease in cool-season grasses with an increase in warm-season grasses and desirable browse.

Tuweep's allotment grazing system is maintaining its cool-season grasses and shows an increase in warm-season grasses. Desirable browse does not occur in the trend measurement areas.

Cedar Knoll's allotment grazing system shows an increase



Cedar Knoll well with annual forbs and some sagebrush only. An allotment with heavy use on rest-rotation grazing.

only in browse, with a decrease of its cool-season grasses. No warm-season grasses occur in the trend measurement areas.

Vermillion Cliff's allotment grazing system is allowing a decrease in cool and warm season grasses. Browse is static. **NOTE:** Trend is measured in plots (now with transects also) located in a key area, which demonstrates management effects on the allotment. Vegetation area and species composition are measured to determine trend over time periods.

Conclusions

The observations indicate that as far as the Arizona Strip is concerned, utilization levels on the graze pastures should not exceed an average utilization of 55%. Any one grouping of

species (browse, cool, and warm-season grasses) that is used at higher levels—above 55%—during a graze cycle will decrease the species composition.

From the available data, it also appears heavy use at any season proves detrimental. Thus, average utilization during the winter, spring, summer, or fall, alone or together, cannot be allowed to exceed 55%. It can be said that drought occurs frequently enough on the Arizona Strip to negate the benefits (to forage) of rest periods from grazing, when high utilization of forage has occurred during the graze cycle.

Rest-rotation grazing will work in the southwestern deserts when applied as mentioned above; thus, such a system can fit into multiple-use management schemes.



Native Grass Leaps to the Sun

Frank Farmer

Editor's Note: This is a reprint from the *Springfield News and Leader*. It was submitted by Wayne Weaver, president-elect of the Southern Section, Society for Range Management. Weaver's paying job is Area Resource Conservationist for the U.S. Soil Conservation Service, Springfield, Missouri. The article tells what is happening in the Ozark Mountains of Missouri.

When Richard L. (Dick) Walker was a member of the U.S. Air Force he used to fly over the Ozark Mountains in southern Missouri on various training missions. He learned to appreciate the rugged hills. And so he made plans to retire in those hills.

He did just that about 12 years ago and began the almost impossible task of restoring the land to a productive state. That he succeeded, however, was manifested recently when he was honored with an award by the Soil Conservation Society of America.

The certificate reads: "This certificate is presented to the Richard L. Walker Ranch in recognition of Natural Plant Community Management in a wise and judicious manner."

The selection of the Walker ranch for the honor now gives Missouri four identified areas designated as "Managed Natural Areas."

The abstract of the nomination papers reveals this information about the ranch:

It is located seven miles south of Seymour in southwestern Missouri in both Webster and Douglas counties. The ranch contains 880 acres and is a cow-calf and steer backgrounding operation.

Approximately 130 acres are in native timbered areas that were sprayed, using ground equipment, to release the native grass species, Big and Little Bluestems, Indian Grass and

Switchgrass. These grasses and several native legume species have responded to the opened canopy of the woodlands. Northern slopes are maintained in hardwood forest for future timber production.

Soil types on the ranch are steep, well-drained deep soils with cherty surface layers having low available water holding capacity.

Annual precipitation is about 43 inches with a growing season of 175 days. Altitude will vary from 1,300 to 1,667 feet above sea level.

Walker discussed the development of the rugged area, "When we started," he said "we wondered if we could restore the place. We know what it used to be like, because a neighbor had told stories of how the grass grew so tall that you could not see the cattle. And then the place grew up in brush.

"When I first saw the land, I had to park my car and walk through it. The carrying capacity of the whole place was about 50 head, and only during the growing season. After I bought it, I unloaded my Caterpillar tractor in the road and started driving through the brush making roads, just so we could get over the place.

"The second thing was to build fences. We used steel posts so we could pack them through the brush on our back, but eventually we dozed out the fencerows."

Walker cleaned up several tracts with his dozer and seeded fescue grass but he also began to notice spindly clumps of native grasses. Then one year fire got out on a portion of the land and where the fire laid low the brush the native grasses were released—as well as Walker's imagination.

He decided to kill some of the brush by spraying, so drove his tractor and spray rig at random through parts of the brush and timber, spraying from the ground.

He subsequently sprayed from the air but that back-fired