

A Grazing System in the Mohave Desert

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Introduction

The Mohave Desert is that region where the bursage (*Ambrosia dumosa*), creosotebush (*Larrea divaricata*), and Joshua trees (*Yucca brevifolia*) are the characteristic vegetation. This desert occurs in southern Nevada, parts of southern California, northwestern Arizona, and extreme southwestern Utah. There are valuable forage plants that occur in this desert such as Indian ricegrass, big galleta, winterfat, ephedras, ratany, mallows, buckwheats, and numerous annuals, especially after wet winters. This forage has attracted ranchers with their sheep and cattle for winter grazing since the 1800s. After the wet autumns and winters, the lush annual growth can "slick up" cows like the good grass country on the Great Plains.

However, on dry years the cattle and sheep had only the perennial grasses and shrubs to graze. This, in time, left the grazeable acres in the Mohave with considerably fewer perennial grasses and shrubs that were desired most by the grazing animals. The dry years became leaner.

The Bureau of Land Management (BLM) has large portions of the Mohave Desert under its administration. The goal of the BLM is to improve range conditions of this desert.

The Arizona Strip District (north of the Grand Canyon) administers a portion of the Mohave Desert at its northeastern edge. This portion of the Mohave receives an average of 6.3 inches (1968-80) of precipitation. It can range from 3 inches in dry years to 14 inches in wet years. The summer temperatures can reach near 120 $\frac{1}{2}$ F in the summer and freezing temperatures in the winter.

With such fluctuation in temperatures and erratic rainfall, the arid Mohave Desert provides real challenges to range managers who want to improve the range conditions.

The Data

The BLM implemented a grazing system in 1969 on the Beaver Dam Slope Allotment in the extreme northwest part of Arizona. There are 6 key areas on the allotment with trend and utilization data from 1970 to 1980. The key warm-season (big galleta) grass occurred in 5 of the 6 key areas in 1970. Big galleta ground cover in 2 key areas decreased by 1980, remained the same in one key area and lost in another; and one key area had an up trend. Cool-season grasses (Indian ricegrass and squirreltail) also occurred in 5 of the 6 areas in 1970. From 1970 to 1980, 3 of the key areas lost all of their cool-season grasses. The other 2 key areas have had a slight down trend (or maintained) their cool-season grasses.

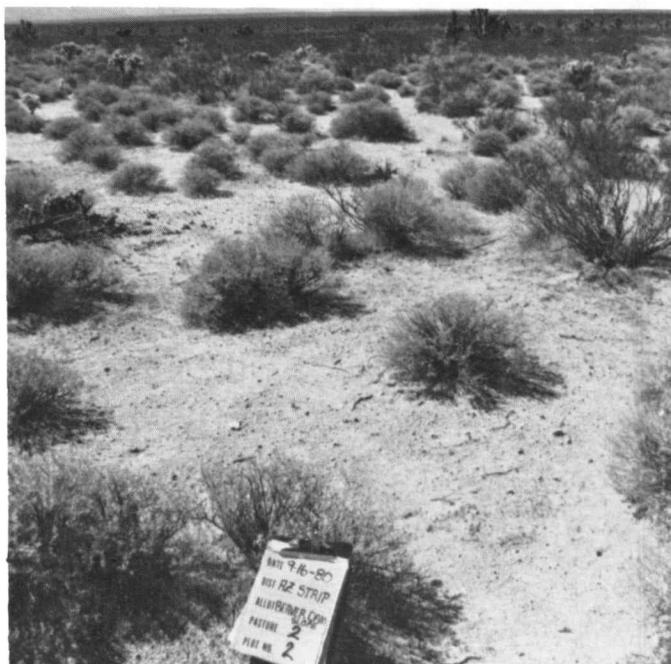
Browse (winterfat and bursage) is doing well. Winterfat occurred in only one key area in 1970 and has an upward

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¹Mohave and Mojave are one and the same. Mohave is the anglicized version of Mojave.



Trend Photograph 1970



Trend Photograph 1980

Note: Bursage ground cover increase.



Trend Photograph 1972



Trend Photograph 1979

Note: Bursage increase on cover. Big Galleta grass patch has shrunk in size (center foreground)

trend. Bursage occurred in 4 of the 6 areas in 1970 and has a strong up trend.

Utilization on the cool-season grass showed light use—an average of 33%. The range of utilization over the 10 years ran from 10% to 64%, which is slight to heavy. Utilization on the warm-season grasses averaged 32% and the range of utilization over the 10 years ran from 10% to 60%. Utilization on browse averaged about 35% with a range from 10% to 80%.

The grazing system on the Beaver Dam Slope is a 3 pasture deferred system with use from December to June. Two of the pastures receive a year's rest every other year between use periods. One of the pastures is used December, January, and February every year and gets 9 months rest between use periods. The system has been occasionally broken, usually because of a lack of water or feed. The cattle usually went to the pasture with most feed or water, or were pulled off the allotment. This has resulted in one pasture's occasionally receiving 2 years rest. No difference was noted in the trend of this one pasture from the other pastures.

The grazing system plan has been followed most of the time between 1970 and 1980.

Conclusions

With the Mohave Desert's severe arid climatic conditions and what can be drawn from the above data, it appears grazing systems have little chance to improve range conditions. Average utilization of the perennial forage was in general light—around 30 to 35%. The high utilization (above 50%) that occurred in some of the 10 years harmed the desert grasses even when followed with rest from grazing. There is little a manager can do to bring perennial grass back from occasional years of heavy utilization in arid regions. Browse seems to tolerate the heavier utilization.

In planning and placing grazing systems on the Mohave Desert areas, other land use considerations (endangered species for example) would have to weigh heavily with the goal of improving range conditions. Grazing systems appear to have little or no effect in improving range conditions in the Mohave Desert. Managers should look to good management through seasons of use and holding utilization levels within safe limits—below 50%—on all years. The number of animals grazed must be as flexible as the variable precipitation. Grazing systems cost too much and fail to give a significant economic or ecological return on the Mohave Desert.

Meetings Ahead

A symposium on soils and overburden aspects of mined land reclamation will be held in Casper, Wyo., on January 20-21, 1983. The agenda of the symposium includes seventeen solicited papers within five subject area sessions. For further information on this symposium, contact either Jerry Schuman in Cheyenne (307-772-2433) or Ed DePuit in Laramie (307-766-2196).

The 54th Annual Meeting of the Colorado-Wyoming Academy of Science will be held April 29-30, 1983, on the campus of the University of Wyoming. Meeting jointly with the Academy are: the Colorado-Wyoming Section of the American Association of Physics Teachers, the Central Rockies Chapter of the Ecological Society of America, the Colorado Biology Consortium, and the Colorado-Wyoming Junior Academy of Science. You are cordially invited to

submit a title and present a report of research results of other projects of interest to the scientific community represented by the Colorado-Wyoming Academy of Science. PROGRAM OFFICER: Dr. Dennis H. Knight, Department of Botany, University of Wyoming, Laramie, WY 82071 (307-766-3291).

The 4th International Theriological Congress will take place August 13-20, 1985, on the campus of the University of Alberta in Edmonton. The purpose of this notice is to solicit names for a preliminary mailing list of potential participants, and to request comments and suggestions.

The names of all who attended any of the first three congresses will be placed on the provisional mailing list for IV ITC, but, if your address as listed in the Transactions of the Congress you attended is no longer correct, please send a current address. W.A. Fuller, IV ITC, P.O. Box 632, University of Alberta, Edmonton, T6G 2E0. Canada.