

The Cimarron National Grassland: a Study in Land Use Adjustment¹

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Highlight

The national grassland program has produced a number of beneficial changes in both the land and the economy of southwestern Kansas. Through the federal purchase and conversion of marginal farmland to grassland and integrating the management of these lands with associated private lands, soil erosion and water runoff have been reduced and a more dependable supply of summer forage has been provided the area's livestock industry. Multiple use management of the government lands has also produced a habitat for wildlife, ponds for waterfowl and fish, and recreational opportunities. The grassland program in southwestern Kansas seems to be accomplishing its objective of proper land use consistent with the conservation of the area's natural resources.

Mortgage foreclosures, tax delinquencies, and personal hardships were commonplace in many parts of the United States during the 1930's. The number of such cases was particularly great in those areas of the country where families were trying to gain a living from the use of submarginal farmland and depleted rangeland. In an attempt to alleviate some of the distress emanating from the use of these lands, the U.S. Department of Agriculture in 1934 initiated a program of submarginal land purchase and development. This program by the end of 1946 had established some 250 land utilization projects with a total acreage of 11.3 million acres in 45 states of the conterminous United States. In 1954 approximately 3.8 million acres of utilization project land were transferred to the Forest Service for permanent retention and management. These lands which were incorporated into National Grasslands are being developed for such multiple uses as range, wildlife habitats, watershed protection, and recreation.

This paper deals with the rehabilitation and management of an almost contiguous tract of submarginal land in an area of semiarid climate. Although the findings reported here are limited to those of a single project, enough similarities exist between the Cimarron Grassland and other national grasslands (Fig. 1) to make this study useful in an understanding of the program and some of its results.

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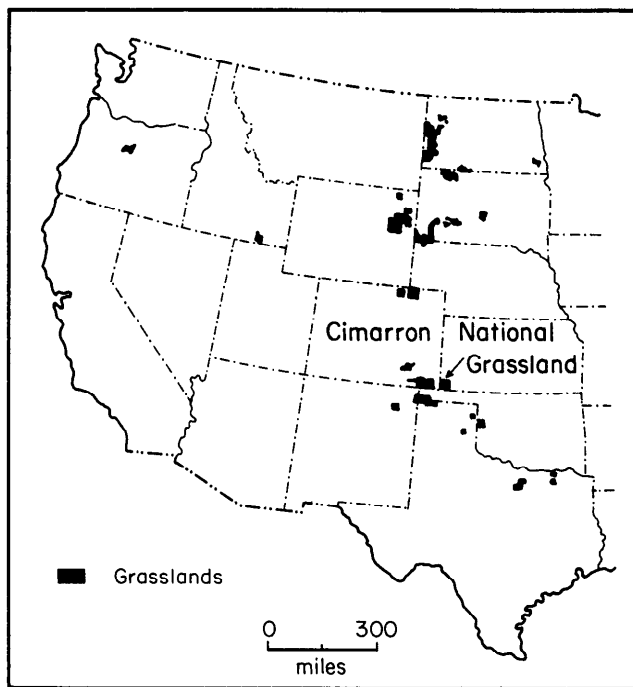


FIG. 1. Location of United States National Grasslands, 1966.

The Area

The Cimarron National Grassland, with the exception of 480 acres in adjacent Stevens County, is located in Morton County, Kansas (Fig. 2). The grassland extends mainly along the Cimarron River, with the greatest area located south of the river.

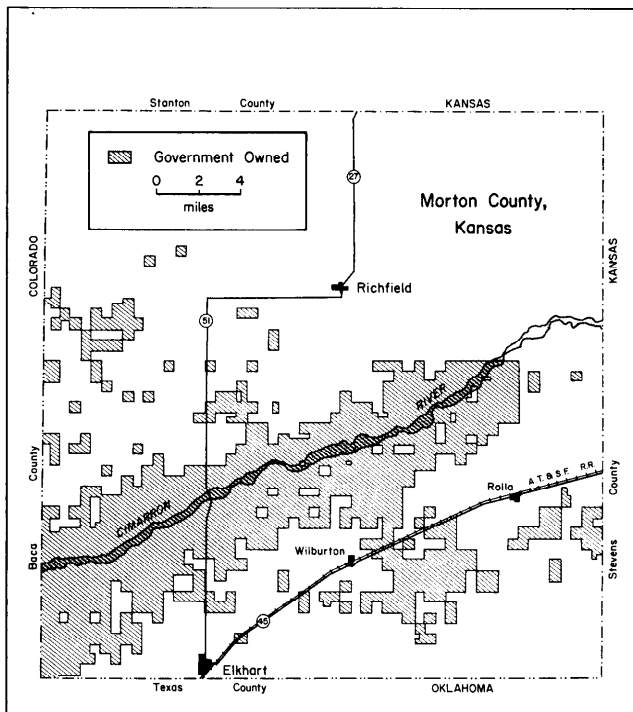


FIG. 2. The Cimarron National Grassland. Shaded areas represent government-owned land.

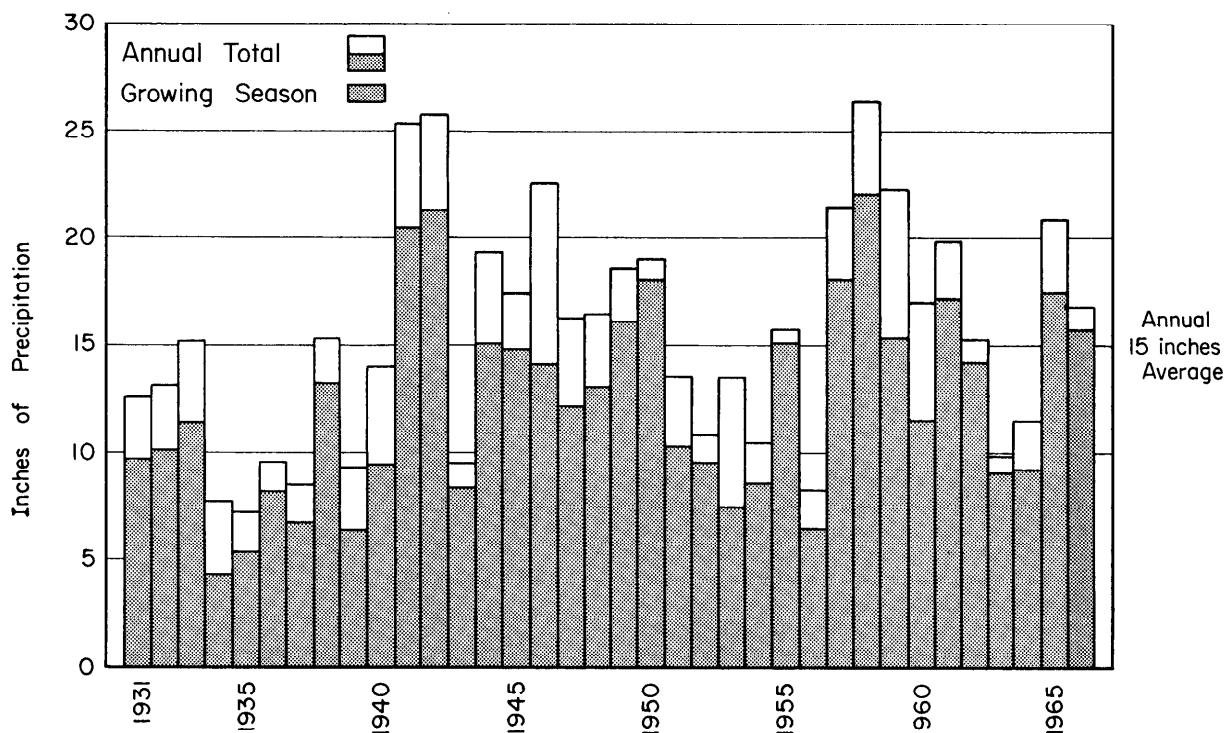


FIG. 3. Annual and crop season precipitation at Richfield, Kansas, 1931-1966. Compiled from U.S. Department of Commerce records.

The first purchase of project land was made in 1935 with emergency funds of the Agricultural Adjustment Administration and included nearly 54,000 acres. In 1938 an additional 42,800 acres were acquired under Title III of the Bankhead-Jones Farm Tenant Act. Through additional purchases and exchanges the project reached its maximum and present acreage of 107,000 acres in 1942. This acreage represents about 25% of the total land area of Morton County (Schumacher and Atkins, 1965). Additional purchases of land, possibly as much as 6,000 acres, and some exchanges of arable land for poorer land are planned for the future.

The climate of the Cimarron Area may be described as semiarid, characterized by light precipitation, confined largely to the warmer half of the year; moderately high wind velocities of about 15 mi/hr; and a high rate of evaporation and transpiration (Guest, 1951). The average annual precipitation as recorded at the cooperative U.S. Weather Bureau reporting station 10 miles west-southwest of Richfield, Kansas, is 15 inches (Fig. 3). Probably more important than the average annual rainfall is the extremes of precipitation which between 1931 and 1966 ranged from a high of over 25 inches to a low of approximately six inches. About 75% of the annual precipitation usually falls during the growing season between March 1 and September 30. Snow supplies little effective moisture

since it is commonly accompanied by high winds and much of it drifts into road cuts and low places.

Frost is seldom a restricting factor to agriculture except after abnormally warm weather in March or early April.

Most of the National Grassland is located in the Cimarron River Valley and on the uplands adjacent to the river. The river valley averages about 0.5 mile in width and is mantled with sandy soils. These soils have a slope of 0 to 3% and during periods of flooding often become a part of the river channel. On the upland south of the river, the soils are mostly sands and loamy fine sands which occur in dunes or hills with slopes of 5 to 25%. Because of rapid permeability and low moisture-holding capacity, wind erosion is common on the areas of unprotected land. The Cimarron Grassland also includes most of the nonarable steep and broken land along the north side of the river. In these areas which have a slope of 5 to 15%, the soils are chiefly calcareous sandy loams and calcareous loams. A few isolated sections of project land are located from three to ten miles north of the river. These areas of nearly level to gently sloping tableland are covered with silt loam and loam soils. The soils are well suited to wheat and sorghum (*Sorghum vulgare*) production. However, wind erosion is a hazard on the nearly level land while both wind and water erosion are problems on the gently sloping land (Dickey et al., 1963).

Table 1. Acreage of grassland used and number of cattle grazing Cimarron National Grassland for selected years.¹

Year	Acres used	No. cattle	Months
1943	18,000	676	5.0
1944	20,000	890	5.3
1945	21,240	1,421	5.5
1946	29,598	2,063	5.7
1947	35,391	2,056	5.0
1948	45,631	2,478	6.0
1949	54,597	3,036	6.0
1950	54,597	2,769	6.0
1955	94,218	3,608	5.0
1960	94,000	2,916	6.0
1965	88,309	3,305	5.5
1966	88,309	3,465	6.0

¹ Steward J. Adams, District Ranger, Cimarron National Grassland.

Resource Use

At the time that the Department of Agriculture made its first purchase of project land in 1935, wind erosion in the area, as well as the entire Great Plains, had reached such magnitude that it had become a national problem. Wind erosion was particularly severe along the Cimarron River since nearly one-third of the land had been cultivated, and most of the soil was unstable and subject to blowing. Even on the rangeland most of the permanent plant cover had been destroyed either by overgrazing or by the deposition of dust. In rehabilitating these areas, the first step was to temporarily stabilize the soil. Where possible the land was listed and seeded usually to sorghum and broomcorn (*Sorghum vulgare* var. *technicum*) since these crops were slow to deteriorate and were more likely to reseed the following year.

By 1943, grass (blue grama, *Bouteloua gracilis*; buffalograss, *Buchloe dactyloides*; sand lovegrass, *Eragrostis trichodes*; crested wheatgrass, *Agropyron cristatum*; and Canada wildrye, *Elymus canadensis*) had been well enough established on 18,000 acres of the project so that the land could be grazed (Table 1). This acreage during the first year supported nearly 700 head of cattle over a five-month period. As more land has been successfully seeded to grass (sideoats grama, *Bouteloua curtipendula*; and little bluestem, *Andropogon scoparius*, because of better drought qualities have been substituted in the grass mixture for crested wheatgrass and Canada wildrye), the number of cattle grazed annually has increased to more than 3,000 head. Permits to graze the grassland have been and are issued mainly to local farmers and ranchers of the Morton County Grazing Association which was organized in 1944. During 1966 only 26 permits were given to nonmembers. The government determines each year the number of animal units that are to be grazed and the length of grazing season.

Table 2. Average annual use and income of Cimarron National Grassland, 1953-1962.¹

Item	Number	Federal income
Animal-unit months of grazing	16,025	\$15,365
Mineral leases	11	\$53,674
Recreational visits	3,465	-----
Misc. land use incl. pipeline easements	101	\$14,648
Total annual income		\$83,687

¹ U.S. Department of Agriculture, 1965.

The grazing period is usually from five to six months, although in 1956 the project was used for only four months.

The grazing association and individual permit holders are responsible for the maintenance of fences and sources of water which were constructed originally during the revegetation program in order to provide the proper distribution of livestock. The grazing fees are adjusted annually in relation to the market value of cattle and average about \$15,000 a year (Table 2). Some 25% of this revenue along with the money received from pipeline easements and mineral leases is returned to the county in which the project land is located and is used for schools and roads.

Although the primary objective of the Cimarron National Grassland is to demonstrate proper land use, the project is also being developed as a habitat for wildlife and for recreation. The grassland is cooperating with wildlife agencies in improving the physical environments of such game birds as the ring-necked pheasant (*Phasianus colchicus torquatus*), quail (scaled, *Callipepla squamata* and bobwhite, *Colinus virginianus*), and lesser prairie chicken (*Tympanuchus pallidicometus*). Morton County had its first deer (*Odocoileus hemonkus*) season in 1965. Predator and rodent control on the grassland is limited and is usually carried out on an individual case basis. Several ponds for waterfowl and fish have been constructed along the Cimarron River by the Kansas Forestry, Fish, and Game Commission.

The Cimarron Grassland is becoming increasingly important for recreation. During 1965, nearly 10,500 people used the area for such purposes. This number was more than two times greater than the number that visited the grassland during 1959. The most popular facility during 1965 was the developed picnic sites (4,000 visitors); approximately 3,500 visits were made for general enjoyment and sightseeing; and about 2,500 people used the grassland for hunting and fishing. Some use (around 100 people) was made of the area for scientific

study and the pursuit of hobbies. Camping sites and additional picnic facilities as well as some observation platforms overlooking the wagon trails of the Cimarron Branch of the Santa Fe Trail are planned.

Results of Rehabilitation Program

The land use problems of Morton County, Kansas, although existing in different degrees of intensity since the county's first settlement, received little national attention until the U.S. Department of Agriculture started its land utilization program in 1935.

One of the accomplishments of this federal program was the establishment for the first time of a definite policy for the management of the area's submarginal land. Prior to 1935, the land characterized by a complicated pattern of private ownership either had been cultivated in units too small for economic crop production or the vegetative cover had been severely damaged or destroyed by overgrazing. By the purchase of lands that were not self-sufficient and integrating them into the management of associated private lands, it has been possible to use both the public and private lands more in accordance with their capabilities. It had been evident for many years that the county's submarginal land could not provide an adequate living for single families but little had been done by individual farmers, or by state and local agencies because of the costs and the length of time necessary to rehabilitate the land.

The Cimarron National Grassland has also demonstrated that the public purchase and the conversion of large tracts of unproductive land from submarginal annual cropping uses to more extensive agricultural uses such as grazing can be undertaken in such a way as to benefit the land and improve the area's economy. The restoration of a permanent cover of grass on such land has not only stabilized the soil even during drought periods but it has also decreased the rate of water runoff. Economically speaking, it has been found that this land even when governmentally owned can under supervision be advantageously used by ranchers and farmers. This managed land in providing a dependable supply of forage for about 3,500 head of cattle each year has greatly increased the economic stability of southwestern Kansas. It has likewise made it possible for more private owners to carry out economical operations on farm units that were previously too small.

The grassland has in addition been of demonstrational value. With the availability of a dependable source of pasture on the National Grassland every year, the cattlemen in the area have been able to carry out more effective management of their own land. Although the success of the grass-

land program as an educational process has never been fully measured it no doubt has had a far-reaching effect on the attitudes and practices of the farmers and ranchers living in southwestern Kansas and adjacent Colorado and Oklahoma.

In addition to strengthening the area's livestock industry and providing a more consistent source of revenue for the local county government, the Cimarron National Grassland has also provided recreational opportunities for a part of the High Plains which is sorely lacking in such facilities. Since the use of the project for recreation has been carried out without interference or reduction in value of the grassland for grazing, the benefits derived from recreational use might be considered as an extra dividend. Just how important, monetarily speaking, it is difficult to say since fees are not charged at the present time for the use of recreational facilities.

Conclusions

Although the American public has shown a preference for an economic system in which land is owned and managed by private individuals, it has, nevertheless, accepted the governmental control of poorer lands and land purchased for recreational purposes. In Morton County, Kansas the proper conservational use of land in private hands has been exceedingly difficult to accomplish especially in the areas along the Cimarron River. It would appear that in the case of Morton County the long-range interests of the county can best be served by the public control and management of the poorer land. There is little doubt that the land is best suited for grazing. However, without the proper management every year, damage to the land may occur even from grazing. Through the integrated management of the poorer public lands with privately owned lands, the Cimarron National Grassland should provide maximum benefits to the greatest number of people, consistent with the conservation of the area's natural resources.

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