

Range Condition Improves with Rest

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One of the most basic of the principles used in management of natural range is that rest will restore the natural vegetation. Often it is the most economical way to improve range cover. Good examples of this are innumerable and may be found throughout the Great Plains region.

Areas of true prairie in a de-

pleted condition within the Great Plains are generally more responsive to resting than mixed prairie and other more arid grassland associations. It is possible on true prairie in eastern Kansas to improve range from fair to good condition by resting for two consecutive full growing seasons.

The photographs shown in

Figures 1 and 2 are graphic evidence of this fact. The two photographs were taken one year apart at the same location. This true prairie rangeland is located 5 miles east and 1 mile north of Soldier, Kansas, in Jackson County, about 40 miles north of Topeka, Kansas. The area lies in the 30-34 inch precipitation zone. Monthly averages are highest for May, June, and September. Hard frosts affecting native vegetation are uncommon from late April to mid October.

The soil is a Shelby clay loam.



FIGURE 1. A tract of native vegetation near Soldier, Kansas on October 30, 1957 after one year of rest.

Table 1. Estimated relative annual production of air-dry herbage by species, grouped according to response to overgrazing, during first and second years of rest from grazing.

Species groups by response to overgrazing	Air-dry Production of Herbage	
	One-Yr. Rest	Two-Yr. Rest
	— (Percent) —	
Invading annual grasses	35	10
Invading annual forbs	30	5
Increasing mid grasses	20	25
Decreasing tall grasses	10	55
Other (response unclassified)	5	5

It has a friable clay loam surface layer 10 to 12 inches thick. The subsoil is a heavy clay loam. This is underlain at a depth of 40 to 60 inches by glacial till of clay loam texture. At this location, the slope varies from 5 to 6 percent.

Figure 1 is a view of the tract after the first year of rest. The photo was taken and the vegetation was in fair condition on October 30, 1957. It is easy to deduce what had happened during that growing season. Annual grass and forb invaders were first to respond, giving the area a "weedy" aspect. If livestock had been present, the abundant Horseweed fleabane (*Erigeron canadensis*) and many other invaders already present, would have been kept grazed down. On ranges in low condition, they become very prominent during the

first year of protection from grazing. However, underneath this weedy cover, there were remnants of the original true prairie vegetation. A few seed

heads of big and little bluestem (*Andropogon furcatus* and *A. scoparius*) Indiangrass (*Sorghastrum* sp.) and Switchgrass (*Panicum virgatum*) appeared after the first year of rest. But far more important than these few seed stalks was the extension of roots, rhizomes, and tillers at or below the surface on these perennials. Rhizome extension is readily checked on rested ranges by carefully lifting them with a spade in autumn following deferment. Rhizomes frequently extend two to four inches all around scattered tall grasses after the first season of deferment on depleted ranges. These produce above ground shoots the following season.

Those not familiar with the processes of secondary succession may jump to the conclusion that beneficial results are not obtained by a one year deferment. In fact, it may appear that the season's rest has resulted in weeds "taking the place". Where there is a lack of understanding, this would be a natural reaction. Consequently, it is important that technicians providing council and guidance to ranchers desiring to improve deteriorated range point out that a great increase in prominence of weeds is very likely to occur as a result



FIGURE 2. The same tract of native vegetation shown in Figure 1 on September 10, 1958.

of a one year rest. Firstly because they or their seeds are often abundant on ranges in low condition, and secondly, because until the year of rest, most are closely grazed and inconspicuous.

Figure 2 is a view of the same tract after two consecutive growing season rests. It was taken September 10, 1958. Range con-

dition improved remarkably but the dramatic change was during the second year of rest. This range was in good condition by the end of the 1958 growing season. Weeds were crowded out and the taller growing grasses characteristic of true prairie in eastern Kansas were restored.

This is an example of aiding secondary plant succession by

resting. It shows how rapidly native grasses responded to good management and how range condition may be inexpensively raised from low to high. It shows that where the original grasses were still well distributed, though weak from close grazing, range condition could be inexpensively raised from low to high in two years.