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# Rangelands—at Close Range

Harland E. Dietz, national range conservationist,  
Soil Conservation Service, Fort Worth, TX, and

Harlan C. DeGarmo, range conservationist,  
National Technical Center, Soil Conservation Service, Lincoln, NE

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**R**angelands are the principle source of forage for domestic livestock—producing meat, milk, wool, mohair, and many other animal products. They provide habitat for a wide array of wildlife species including grazing for big game and food and cover for birds and small animals. As watersheds, rangelands provide a quality source of water to a growing urban population. Recreation, firewood, and charcoal are becoming range cash crops in some areas where the resources support such enterprises. Rangelands are diverse and difficult to define and poorly understood both in terms of their value as a national resource and the importance of managing them correctly.

A home for natural vegetation, range represents the climax plant community of predominantly grasses, grasslike plants, forbs, or shrubs suitable for grazing or browsing use. Among the many forms of rangelands are natural grasslands, savannahs, wetlands, some deserts, tundra, and certain forb and shrub communities. It is uncultivated land and with few exceptions it is not fertilized,

overseeded, irrigated, or mechanically harvested.

## Location and Types of Rangeland

Slightly more than 700 million acres of these natural range ecosystems abound in the United States. The major portion occurs in the States lying west of the Mississippi River. Only about 6 million acres are eastward along the southern Gulf Coast and in Florida.

Categories separate rangelands into broad regions, types, or areas.

1. The *tall-grass* area originally occurred as far east as Indiana and Illinois with the western edge approximating the 100th meridian.

2. West of the tall-grass area is the *mixed prairie area*, dominated by lower growing species.

The *short-grass prairie area* is characterized by low-growing species.

3. The *southeastern rangelands* occur along the Gulf coast from Texas to Florida.

4. The *southwestern rangelands* extend from west Texas into New Mexico, Arizona, and Nevada.



*Good grazing management has allowed dominant bluestem grasses to perpetuate on the range in a Kansas mixed prairie area. (SCS)*

5. The *intermountain basin rangeland area* is not a continuous unit like the prairie regions. These basins extend throughout the intermountain region between the Rocky Mountains on the east, the Sierra Nevada, and Cascade ranges on the west.

6. The *west coast annual rangelands* are largely restricted to the Mediterranean climatic region of California.

7. The *northwest bunchgrass rangelands* of Idaho, Oregon, and Washington are characterized by the

extent and dominance of blue bunch wheatgrass.

### **Diverse Native Plants**

Within each of these major physiographic areas is contained a wide diversity of native plant communities. For example, within the tall-grass prairie there are large acreages of shallow soils and claypan soils that inherently support climax plant communities representative of the short-grass prairies lying several hundred miles to the west. Similarly, within the prevailing short-grass regions are

areas of sandy soils, bottomlands, and soils having high water tables where conditions are favorable for growing taller grasses.

### Range Sites

Essentially, rangelands are a mosaic of natural ecosystems. A single ranch or even a fenced pasture will possess several dissimilar plant communities. The inherent differences of these communities should be recognized and understood when developing plans and schemes for improved management of the resource. These micro-units, or ecological subdivisions of the rangeland landscape, are referred to as range sites. They become the basic interpretive units for study, inventory, planning, and management. Understanding the parts of the rangeland complex is essential in management of the whole.

A range site is defined as a distinctive kind of rangeland in its ability to produce a characteristic natural plant community. A range site is the product of all the environmental factors responsible for its development including soils, topography, climate, and fire. Each site supports a plant community that differs from that of other range sites in the kind or proportion of species or in total production. Range site information can be interpreted as to suitability of a site for a single use such as grazing or for multiple uses including wildlife habitat, watersheds, recreation, and natural beauty.

The native plant community occupying a range site in the absence of

abnormal disturbance and physical site deterioration is referred to as the climax community for that site. It is the plant community that is best adapted to the unique combinations of prevailing environmental factors.

Although there is some variability, the assembly of species of the climax community for a range site is relatively stable and is approximately the same from place to place within a county or parish and will occur with reasonable predictability. Essentially, the climax represents the potential plant community for a site and is the culmination of thousands of years of evolution.

### Range Site Records

The policy of the Soil Conservation Service is to conduct detailed soil surveys in each county to collect essential soil information. In each survey area where rangeland is a recognized resource component, each plant community has been evaluated and meaningful distinctions have been made in identifying range sites. The ecological data for each site has been recorded in an orderly format referred to as Technical Range Site Descriptions. As many as 40 range sites have been recognized within a single county, and the assembled data is on file in each Soil Conservation Service field office. These descriptions become a repository of interpreted data of plant communities and serve as a basis for planning rational use and management on rangelands.

For convenience range site names are based on permanent physical



*Livestock graze on a prairie in a Texas tall grass area. (SCS)*

features, generally relating to kinds of soil or topography. Examples include such names as Clay Upland, Pumice Hills, Sandy Plains, and Wet Meadows.

Technical Range Site Descriptions contain pertinent data on species, composition, production, soils, topography, and climate. Site interpretations provide information on major uses including grazing, wildlife habitat, and watershed quality. They also provide a sound basis for the selection of species to be reestablished through revegetation programs.

### **Causes of Decline**

Where climax plant communities are subjected to continuous heavy grazing, or where an environmental component important in the development of the climax vegetation is removed or altered, such as fire or the total removal of grazing, then the composition of the vegetation is subject to change. Livestock graze selectively

and, depending on the kind of grazing animal and season of use, preferred plants are weakened and replaced by less preferred plants. If overgrazing continues for extended periods the vegetation may undergo dramatic changes.

On some range sites, woody plants have invaded or thickened with the cessation of fires. Plant composition may also be affected on many sites if grazing is omitted for years, resulting in excessive accumulations of plant residues. Changes in vegetation from these causes generally are gradual and follow a somewhat orderly sequence of departure or degradation from the climax plant community. Any departure from climax denotes a change in the health or condition of the vegetation on a range site.

### **Determining Range Condition**

Quantitatively comparing vegetation

presently growing on a range site to the climax plant community for that site is referred to as determining range condition. Four classes of range condition are recognized for use in expressing the ecological relationship of the present plant community to that of the climax community for a range site. They are excellent, good, fair, and poor. Excellent condition means that over 75 percent of the present plant community is climax for the site. Good condition means 51 to 75 percent is climax, fair is 26 to 50 percent, and poor condition class indicates that 25 percent or less of the present vegetation is climax for the site.

Generally, trends in degradation in the plant community, whether caused by overgrazing, prolonged drouth, wildfires, insects, or physical disturbances, can be reversed when the causes are corrected. Secondary plant succession operates to reestablish the climax plant community if remnants of the original plants are still available and if the site has not been severely damaged by erosion.

Determining range condition is an essential component in rangeland inventories. It provides the basis for interpreting the effects of past management and for predicting the extent of change that can be expected from improved management and treatment. This applies whether concern is with a single pasture, a ranch, county, state, or even on a national basis.

Although determining range site and range condition does not automatically indicate the exact value

of a plant community for forage production, wildlife habitat, watershed, or other specific uses, it does provide insight to the quality level of these values. A range site or a pasture or ranch having sites in predominantly good and excellent range condition is generally considered to be producing near its potential and attaining a high degree of efficiency in providing the other major amenities of rangelands including water yield, water quality, erosion control, and wildlife food and cover.

### **A Specialized Field**

An understanding of rangelands has evolved over the last 40 years, to where today it is recognized as a specialized field of study. Ranchers, researchers, and range conservationists have drawn knowledge from the plant and animal ecologist, animal scientist, chemist, soil scientist, and climatologist. This knowledge has been brought together into the field of knowledge known as range science.

The current level of knowledge provides for the proper management of most range sites to achieve a level of sustained productivity and supplemental benefits. As the study of the relationships between plants and other organisms advances, the possibilities for refinements in management of rangelands will be enhanced.

The goal of range management should be to use the range resource, the vegetation, for the benefit of people and do so in a manner that the resource base is not degraded but perpetuated.