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PLACE AND USE OF UTILIZATION STANDARDS ON  
LIVESTOCK AND BIG GAME RANGES

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It is doubtful that range utilization standards, as developed to date, have practical value in promoting the improvement, maintenance, and efficient use of ranges. A close look at utilization standards and some of the factors that determine proper grazing will bear out this statement.

What are Utilization Standards?

Utilization standards are measures designed to gauge the most intensive grazing that can be tolerated by the range without deterioration--without loss of forage, livestock and wildlife production, soil fertility, watershed function, recreation, and other range values.

Utilization standards are also called proper use factors and are applied to plant species, vegetation types or the range as a whole. When applied to a key species--it is assumed that the range as a whole is properly grazed when the key species is properly grazed. Utilization standards are expressed in terms of the amount of current herbage production removed by grazing or the amount left on the ground.

To date utilization standards have been worked out for a limited number of species and range types. The following remarks by researchers provide a fairly clear idea of what utilization standards are like and how they are used.

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For ponderosa pine-bunchgrass ranges in Colorado, Johnson (2) said: "An optimum of 35 to 40 percent utilization of the grass and sedge herbage is recommended as being a grazing intensity that will maintain forage values and make efficient use of available forage for beef production. To obtain this utilization, Arizona fescue should be grazed to an average height of 5 to 6 inches by the end of the grazing season and mountain muhly to 1 1/2 to 2 inches."

For mountain meadows in eastern Oregon and eastern Washington, Reid and Pickford (3) said that--"Tufted hairgrass is the principal species that governs proper forage utilization and management of mountain meadows. Since it is desirable to maintain or increase the stand of tufted hairgrass, the meadow should be managed so that not more than 55 percent of the herbage of this species is utilized on the drier, more heavily grazed sites."

For sheep winter ranges in the Intermountain region, Hutchings and Stewart (1) suggested the following: "To provide for reasonable stability in winter grazing and to assure an adequate forage supply in most years, a basic stocking rate that will utilize 75 percent of average forage production is recommended."

For northern great plains sheep ranges, Woolfolk (6) recommended that--"Not more than 29 percent of the herbage of blue grama should be removed by grazing on a properly stocked sheep range comparable to the experimental range. Such use results from grazing 45 percent of the total number of individual plants to an average stubble of 0.6 inch."

Similar standards have been developed for other species including Agropyron spicatum (bluebunch wheatgrass), Poa secunda (Sandberg's bluegrass), Hilaria belangeri (curly mesquite), Bouteloua curtipendula (side oats grama), Hilaria nutica (tobosa grass), Purshia tridentata (bitterbrush) and Ceanothus sanguineus (red stem ceanothus). A 2 inch stubble and mulch cover has been

recommended for California annual type ranges and a 3 inch stubble for subalpine grasslands in the Pacific Northwest.

Stoddard and Smith (4) have pointed out some of the weakness of present concepts of proper use and utilization standards as follows:

"Percentage utilized does not give an exact picture of the stress to which the plant is subjected. Among the factors affecting plant response to a given grazing use are:

1. Current growing conditions. In drought years plants can stand less use than during favorable years.

2. Habitat or environment. On fertile, moist soils regrowth is abundant and herbage is soon replaced. On dry, eroded hillsides, plants are less able to withstand grazing shock.

3. Season of grazing. During seasons of depleted food reserves, plants can be injured by grazing intensity that would not injure them during late fall or other less vulnerable seasons.

4. Duration of grazing. What appears to be full use at the end of a summer grazing season may result from continued grazing throughout the spring and summer; from heavy spring use followed by rest and regrowth, followed by heavy regrazing; from complete rest during spring and full use just prior to the close of the summer grazing season; or from innumerable other conditions. None of these factors is considered in the usual expression of utilization.---

"The level at which we set proper utilization numerically is unimportant, provided that we understand that light utilization may mean virtual defoliation in some instances. Not only do we not have little accurate information on what is proper or safe use of a range, but also we lack a readily usable measure of such use.--- Further research is necessary before conclusive proper-use standards are available."

In practice utilization standards have had to be adjusted to fit the conditions of specific ranges. This has been necessary because standards have been worked out for specific vegetation, soil, topographic, and climatic conditions and, therefore, can be applied only to ranges with similar conditions. Ranges differ appreciably from each other in one or more respects, so general use of specific standards are precluded. This shortcoming of utilization standards was recognized in the 1948 instructions for range resource inventories on the national forests in the following statement:

"Plant use factor lists can seldom, if ever, be used as proper-use guides for key species because of local differences in soil, slope, composition, need for improvement in range conditions, etc. Proper-use guides for key species must always be developed, locality by locality, using approved methods to meet all existing variations." This means that present utilization standards are not the inflexible yardsticks they are intended to be and in fact are not standards at all.

Still another weakness of utilization standards is that they gauge average utilization. Range utilization is usually uneven because of the selective grazing habits of livestock. Some plants and areas are closely utilized when average utilization of key species or of the range ~~measures~~ up to standards. So, although observations or measures based on averages may indicate that the range is being maintained, actually the range may be deteriorating.

Present utilization standards, therefore, have several weaknesses. They gauge only one of the several important factors that determine proper use. They are not the rigid yardsticks they are intended to be. And, they are based on average measurements which do not reflect clearly whether the range is being maintained or deteriorated. In view of these weaknesses,

it is difficult to see how present utilization standards can have practical value in guiding grazing management. In fact it is difficult to see how any one measure can be used to indicate proper use.

#### A Substitute for Utilization Standards

The question may be raised: Are utilization standards needed at all? What are they intended to do? By definition they are supposed to indicate proper use--whether prevailing management is providing for the maintenance and efficient use of the range or not. Instead of using an index guide like a utilization standard for this purpose, why not observe or measure changes in range condition and livestock weights and use these criteria to guide management.

Criteria that could be observed to get a fairly clear picture of the effects of prevailing management on bunchgrass type ranges like those found on the national forests are (1) establishment of reproduction of desirable forage species, (2) presence or absence of accelerated soil erosion, (3) distribution of utilization over the range, and (4) livestock weight gains and condition.

Establishment of reproduction of desirable forage species leads to increased forage production, greater soil fertility, decreased soil erosion, and ultimately to maximum grazing capacity. Regular reproduction establishment indicates that the system of management is meeting the growth requirements of the vegetation.

Widespread accelerated erosion indicates too close removal of the vegetation cover. This is corrected mainly by reducing stocking. The efficiency of range use and livestock production is governed by stocking rate, livestock distribution, and the season of grazing. The effects of these factors are reflected in livestock weights and condition.

This kind of range and livestock information provides a sound, realistic basis for regulating utilization. It focuses attention directly on the effects of utilization instead of on indices related to these effects. This permits visualizing the causes of results more clearly and doing a better job of management.

Summing up, utilization standards as developed to date are inadequate for managing grazing on either livestock or game ranges. It is suggested that range condition trend and animal weight and condition criteria be used instead.

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