

Grazing Utilization Limits: An Ineffective Management Tool

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As interest and concern about the environment and public lands has markedly increased in recent years, there has been an increasing effort to manage livestock grazing on the basis of utilization standards or limits. This deceptively simple concept has become popular with environmental reformers opposed to public land grazing and with agency administrators caught up in the political crossfire of land use reform. Grazing use levels or "proper use factors" have long been part of the "tools" used by rangeland managers. Recently though, the tendency has been to base grazing management decisions solely on achieving predetermined use levels at "key sites" on pastures or allotments. This approach may provide simple and efficient "grazing administration" but it does not result in effective grazing management.

The underlying assumption for utilization standards (proper use factors) is that there is a definitive degree of plant tissue removal (grazing use) which plants can tolerate and which can be sustained by the rangeland system. Grazing use in excess of that degree negatively impacts forage plants and the system is not sustainable in the long term. This assumption may seem eminently reasonable to laymen and lends itself to a regulatory system for livestock grazing that may be appealing to agency administrators. However this assumption is inaccurate and a gross simplification of the complex interaction between grazing fauna and the flora (Sharp et al 1994). Neither does it promote reasonable and sustainable use of the useable forage resources on rangelands.

The impacts to the plant of grazing use varies from negative to positive and is dependent on several factors other than degree of defoliation. Grazing impacts vary by species of plant, season of use relative to plant phenology, duration of grazing period, rest periods and grazing intensity. These factors are interactive and may be cumulative or compensatory. Grazing impacts can range from stimulatory to inhibitory depending on the various combinations of the above factors (McNaughton 1976, 1979, Jansen 1982, 1984, Paige and Whitman 1987, Holland et al 1992). It is a gross simplification to reduce grazing management to the degree of utilization (utilization standards).

Herbivory is a fundamental biologic process on terrestrial and aquatic systems that is important to energy flow through the ecosystem (Freeland and Jansen 1974, Owen and Weigert 1981, McNaughton 1984, 1986). The biotic systems on North American rangelands developed over millions of years as a co-evolution of herbivores (including

herds of large-bodied, hooved grazers) and the flora (Martin 1970, Burkhardt 1996). There is no indication that these natural herbivores, either past or present, are functionally dependent on utilization limits. There were no range managers or biologists enforcing use limits on the Pleistocene megafauna, the vast North American bison herds nor the Serengeti grazers. Utilization limits as proposed by the agencies are human concepts regarding grazing management. There are no analogous processes regulating natural grazing systems (Burkhardt 1996).

Utilization standards as recently used by the agencies are subjective both spatially and temporally. By its very nature, rangeland grazing does not occur uniformly across the landscape nor throughout the season. There are opportunities for agency managers to inadvertently or intentionally select areas of livestock concentration or areas of special concern and when use in these areas exceed standards, attempt to close the allotment. Grazing is a landscape-wide activity and effective management must consider the allot-

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ment as a whole. Managers focusing only on those areas of special concern is somewhat analogous to cows congregating in creeks. Furthermore, it has become common to apply utilization checks early in the growing season before plant growth is complete.

By definition utilization is that portion of the total annual growth consumed and can only be measured at the end of the growing season. Early growing season application of use assessment is not "percent utilization" and might more appropriately be termed "relative use" as suggested by Frost et al, 1994. Regardless of what it is called, early season use assessment has little biological significance to the plant and is an inappropriate basis for grazing management decisions. It simply reflects how much of the forage growth to that point in the growing season has been consumed. Subsequent plant growth (not regrowth) during the rest of the growing season renders these early measurements meaningless both biologically and practically.

Use limits (either utilization or stubble height) are only one of several grazing management tools available to the land manager. Ironically while such use limits may currently be popular they are likely the least effective management tool. This is especially so if reasonable and proper grazing of range landscapes is the goal. Utilization limits were developed to manage growing season-long grazing every year. Yet, such grazing strategies in most situations are inappropriate and counter to the nature of rangeland systems and grazing animal behavior. Proper season of use and

rest are far more effective for dealing with most riparian grazing problems than are use limits.

There is no simple, single definitive index for proper management of livestock grazing. Degree of defoliation is not singularly and linearly related to plant health. The interaction of intensity, timing, duration, rest and type of grazing animal determine the grazing impacts on vegetation. Utilization standards are not an appropriate substitute for "on the ground management" combined with objective monitoring of resource trends. The current agency approach to grazing management is in reality a non-management scheme. By rigorous and subjective application of utilization standards livestock grazing will be reduced to a token activity which no longer causes administrative or political headaches.

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To promote reasonable and sustainable livestock grazing managers should recognize the variability of these natural systems and apply grazing management approaches tailored to the specific natural system. For example, on large meadow systems livestock grazing should be managed on the basis of season of use and rest periods. Early season grazing and hot season rest or summer use rotation obviates the need for use limits. Large meadow complexes should be used and managed independent from the surrounding uplands. Another obvious riparian system which requires unique management is the narrow wooded stream bottoms within mountain canyons. Under summer grazing and due to topography, shade and water, these canyons become animal concentration zones. This situation does not respond to stocking rate reduction. Enforcement of conservative use limits in these riparian zones cannot effectively be accomplished. If it could be, it would preclude grazing on the uplands. Management approaches should involve cool season or early grazing and hot season rest, rotation, upland water development and herding. A third unique riparian system is the upland spring. These isolated riparian sites which provide drinking water and small islands of lush green vegetation within a vast arid upland certainly require different management. In no way can upland grazing be managed on the basis of utilization limits on these isolated riparian areas. Either the spring area becomes a sacrifice area similar to isolated watering areas on the Serengeti or we physically protect the spring. In most cases the spring should be fenced and a portion of the water piped away from the spring for animal watering.

Evaluation of the effectiveness of grazing management should be based on trends in resource attributes that are directly affected by grazing rather than attributes of a particular grazing treatment. For example, grazing use levels or degree of streambank trampling are not resource attributes and are inappropriate management objectives. An appropri-

ate basis for evaluating grazing management would be tracking changes (or lack of changes) in a plant community or in the physical character of a stream bank as affected by grazing.

There is indeed a continuing need for effective and environmentally sensitive management of public land livestock grazing. However, recent trends in public land management practices better reflect political correctness of an increasingly urban (and affluent) society than the reasonable management of renewable resource use.

The across-the-board application of conservative use standards to public land grazing is poor resource management and poor public policy. It puts the public land grazing permittee in an impossible position, reduces management agencies to policing operations and gives the radical environmentalists a wonderful tool to beat up the agencies and the ranchers. It is poor public policy that puts renewable resources off limits to the production of food and fiber and shifts that production to non-renewable resource based technology.

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