
VIEWPOINT

Grazing Systems: A Least Cost Alternative to Proper Management of the Public Lands

Is economics research in range resources effectively meeting the needs of the public land administrator in decision making? I contend it is not, and I hope my comments will stimulate some of my fellow economists to expand their views and efforts in research in this field.

I start with an hypothesis that has not been empirically tested. We who support the hypothesis do so only on the basis of visual analyses and gut feelings that we are right. Our hypothesis is that properly designed grazing systems on public rangelands suitable for livestock use are the least cost alternative of meeting many of the major objectives and responsibilities of public land management agencies.

In this day of the environmental movement we hear many criticisms of the economist, his economic tools, and the

concept of progress and profit at the alluded-to degradation of the environment and the quality of life. A recent New Yorker cartoon had this caption, "I guess we have to pay for the higher standard of living by a lower quality of life."

It is common to hear such statements as: "On a purely cost-benefit basis it just wouldn't pay to save planet Earth" (Maurice Strong); "The Planet is perishing on prescriptions written only to serve the cash register" (Russel Train); and "Economic success may result in social, environmental, and ecological collapse" (Barkley and Leakler).

One economist, in all seriousness, once asked me, "Why worry about erosion? If it doesn't pay to stop it, let it erode." I think there is much in this response that points up the problem. Economists are

invariably trained in economic analysis developed to guide decisions in the private sector of the economy. They have effective tools to evaluate costs and returns to the businessman or rancher as long as values can easily be put in dollar terms. However, too often they fail to consider long-range social costs or consequences of man's activities, and they give only lip service to those non-market benefits and disbenefits that might result.

For decision making in management of public resources we must abandon exclusive reliance on economic tools designed primarily for the private sector. Instead we must utilize tools capable of guiding public decisions aimed at achieving multiple objectives, some of which will be subjective in nature.

A major responsibility of public land management agencies is to carry out the intent of Congress as indicated in enacted legislation. For example, major overall umbrella type objectives of the Bureau of Land Management are spelled out in such legislation as the Taylor Grazing Act and the Classification and Multiple Use Act which, though no longer in force, is still followed. Some of these responsibilities are: Stop injury to the public grazing land; provide for the orderly use, improvement, and development of the public lands; stabilize the livestock industry dependent upon the public lands; and manage the public lands to best meet present and future needs of the American people. It is stated in the Multiple Use Act that in determining values the greatest dollar return or the greatest unit output is not necessarily the major consideration.

There is no doubt Congress intended that agencies should carry out these responsibilities in an efficient and effective manner. I believe the intent of Congress can best be met by determining the least cost methods of meeting these objectives. However, most people who have been doing research on the economics of range resources have had improperly designed studies to be of much value to decision making for the public land administrator. Range economics research to date has essentially been *farm management research* geared to profit maximization for the rancher. Almost exclusively the researchers have attempted to measure the benefit of range improvement through development or management in terms of increased AUMs of forage or increased pounds of beef or lamb. They sometimes give lip service to intangible values but essentially they measure only the values easily converted to dollar terms. This same reasoning has carried over into studies on the economic evaluation of grazing systems.

A major objective of grazing systems in public land management is to maintain or improve range condition. Good range condition is the key to assuring most renewable multiple uses of the resource and sustained yields of resource values. Realistic dollar values cannot be placed on range condition per se. Therefore, economists have concentrated on evaluating only one of the products of the grazing system, increased forage production for livestock, which to the public land manager may not even be the most important product. For example, some grazing systems have been designed to increase browse species for critical winter range. These systems allow livestock to heavily utilize the grass species in the spring and then the livestock are taken off before they start to make significant use of browse. Increased forage produc-

tion for livestock is not the goal. In fact, if needed, livestock use would be reduced to increase browse production on these critical big game ranges. Narrowly oriented evaluation systems using conventional benefit-cost analysis would probably show this as a questionable economic practice. But why would it be questionable? Because profit-motivated tools and accountable dollar values are the only methods used for evaluation. Rather than worry about benefit-cost evaluations that are often arbitrary and dubious at best, wouldn't it be much more useful to try to determine if the grazing system is the least-cost method of obtaining the mix of multiple use values desired?

Today, with the public becoming ever more aware of the environment, the role of proper livestock management as a constructive tool in proper resource management is increasingly misunderstood. Many of the special interest groups regard livestock grazing as the principal problem in the destruction of wildlife habitat, erosion of the watershed, siltation of rivers and reservoirs, fouling of recreation sites, and destruction of scenic landscapes. They may be right if it is uncontrolled, season-long livestock grazing. However, we know from experience that livestock grazing is about the only factor of range resource management that can be effectively controlled to produce beneficial results. Good vegetative cover is the base for many of the uses of the range resource. Food and cover for wildlife, protective cover on the watershed, forage for livestock, and to some extent, scenic landscapes are all dependent upon the quality and quantity of vegetation. Livestock grazing management can be and is being used to manipulate the vegetation to serve these varieties of use. Properly managed grazing through grazing systems provides a most effective and efficient means for developing and perpetrating the range condition that is so important to this variety of resource values.

The economist, however, in the very narrow vein of benefit-cost analysis where increased forage is used as the key and often only benefit, can provide a misleading picture and additional ammunition to groups that are fighting livestock grazing on public lands. The final analysis usually shows that it costs "x" amount for each additional AUM and that the cost exceeds the benefits of the AUM as livestock feed; therefore, they state unless you can impute that other intangible values are at least equal to the cost difference, then it is a questionable economic practice.

Unfortunately, in such results the computed benefit-cost ratio is usually the only figure remembered or quoted and it adds fuel to the fire of some of the environmental groups who contend the

taxpayer's money is being spent to subsidize grazing. Also, such ratios make it increasingly difficult to obtain adequate appropriations for range management. In my opinion such research is more of a disservice than a benefit to public land management, and such research should be more properly confined to private lands where profit is the major objective.

Another major problem with current economic studies of grazing systems is that the researchers use a "before and after" rather than a "with and without" evaluation. For example, their studies show the situation before initiation of a grazing system, which is compared to the condition after the grazing system has been established. Such an analysis assumes that had the system not been initiated, conditions would have remained static and there would have been no change. Therefore, they conclude the benefits are only the increased AUMs or pounds of beef and lamb produced and they compare the costs to increased production. They fail to take into consideration what actually would have happened had there been no grazing system initiated. For example, in a group allotment on public lands in Idaho, if there had been no change in livestock management, it would have required about a 54% reduction in livestock use. However, by entering into a grazing system, in this case a rest-rotation system, 30-some permittees were allowed to continue with no reduction because it was believed the area had the potential to carry the livestock use if properly managed. This proved to be the case, and the condition of the range has greatly improved to the point where additional livestock use may be allowed in the future. Current methods of "before and after" evaluation based on increased AUMs only would show little benefit for the money spent and would fail to show the true value of the grazing system in meeting one of BLM's responsibilities—stabilization of the livestock industry.

Economists are not unaware of the problems and possible deficiencies in their research on grazing systems. They state, and rightly so, that it is often impossible to determine what would have happened had the system not been initiated. They don't have the convenient homogenous types of test plots of the physical researcher that they can check results against. Grazing systems, usually large scale and nonduplicative, are not well designed for precise research evaluation.

Since the economist is hung up on the benefit-cost approach, he is faced with the difficult, if not impossible, task of quantifying and placing values on the nonlivestock grazing benefits. Usually, from evaluation of the literature, we find

the economist assumes this problem away by making such statements as "However, the problem of quantifying changes in nongrazing benefits can be circumvented by the concentrating on the measurement of changes in livestock AUMs." Or he can get into philosophical discussions of whether the BLM is a proprietary agent of the Federal Government or an agent of the sovereign, which allows him to state: "As a proprietary agent managing an enterprise owned by the Federal Government, the BLM can count as increased benefits from grazing systems only those which result in additional revenues." Or another approach might be used, such as: "Only measurable returns and costs have been included in [our] equations. This is not to deny the existence or importance of nonmeasurable or difficult returns to measure . . . [but]. Rather than attempt to measure these returns directly, the approach taken in this study is to impute values to these external benefits....(for example) if the present value of the net returns computed according to [our] equation is negative the absolute value of this negative amount would indicate the imputed worth of all external benefits." They would then go on to explain that if the negative amount isn't in fact their value, it is at least the amount society would have to pay to obtain them. If the amount in the equation is positive rather than negative, then all unmeasurable

benefits are merely ignored because now it is assumed that public investment can be justified because it has been proven profitable in terms of returns to the single user group, the ranchers. These and similar statements and approaches can be found throughout the various studies.

I have no doubt belabored the point but I hope I have been able to get across to you the relative unusable nature of the results of such research to the public land administrator in carrying out his agency's responsibilities. I hope you can understand the frustration caused because more useful economic measures for decisions in public resource management have not been developed.

The public land manager, then, is faced with the problem of carrying out his agency's goals, objectives, and responsibilities. The basic overall responsibilities are spelled out in legislation. The specific objectives and means of meeting these responsibilities are detailed in the agency's action plans; in the case of BLM, the Management Framework Plans. In the past we have often looked to mechanical means of resolving problems or avoiding difficult management decisions by using such practices as range reseeding, chaining, contour furrowing, ripping, pitting, spraying, etc. Some of these practices have been successful; many have not. Certainly the effectiveness of a number of these projects in meeting agency responsi-

bilities is open to question.

There is no doubt some past land treatment projects have been valuable, and various of these practices will, under certain circumstances, continue to be needed in the future. However, turning to grazing systems, we find that with using only properly located water developments and fencing, coupled with properly managed livestock, we can, in many, many cases, produce more effective results than through mechanical land treatment. The examples are many under a great variation of topographic and climatic conditions.

In closing, then, I return to my initial hypothesis—that properly designed grazing systems developed in conjunction with the agency's overall action plans for an area, are the least cost alternative of meeting the major objectives and responsibilities of government agencies in managing public rangeland resources.

My challenge to the research community is to develop research proposals designed to carry out evaluations that will either accept or reject this hypothesis. It will not be just a problem for the economists. Physical scientists will also be needed for the major job of determining and quantifying the physical effects, both beneficial and nonbeneficial, of grazing systems.—*Glen D. Fulcher*, Bureau of Land Management, Denver, Colorado.



SRM ANNUAL MEETINGS

- tucson, arizona
february 3-8, 1974
- mexico city
february 9-14, 1975

watch for details in forthcoming issues of the *Journal of Range Management* and *Rangeman's News*.