

Management Aspects of Range Management

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Range management has been defined as the science and art of planning and directing range use so as to obtain the maximum livestock production consistent with conservation of the range resources (Stoddart and Smith, 1943), or as the science and the art of procuring maximum sustained use of the forage crop without jeopardy to other resources or uses of land (Sampson, 1952). In a broader sense, range management is the management of nontillable lands for multiple use purposes including soil and water conservation, recreation, and sustained forage production (Hochmuth, 1952).

The purpose of this paper is to further refine these definitions and to clarify the areas of public and private interests in rangeland. Emphasis is placed on management aspects of range use and the application of economic principles in this complex field. First a distinction is made between range management and ranch management. Management and decision making are equated, and examples of decisions made by the range technician and ranch manager are given. The basis for management or decision making and the steps in management are presented, and the role of the range technician in the management process is defined.

Range vs Ranch Management

In order to obtain a clear understanding of range management, it is necessary to distinguish between range management and ranch management. The definitions of range management given in the first part of

this paper are very broad. They speak in terms of the total range resource and its multiple uses. The term ranch management, as the name implies, deals with individual ranches and is concerned with the management of all the resources available to the ranchman. These resources include the range, livestock, labor, and capital. It should be noticed that the range resource is only one of several resources that are used in the ranch management process.

The decisions made by the ranchman largely reflect his own personal and family goals. These goals may include maximization of income, minimization of losses, maximization of community status, leisure, as well as other goals. The individual is usually concerned with immediate measurable economic returns from rangeland, from grazing animals, timber, wildlife, or other products. Thus, the individual ranchman's goals often do not reflect the goals of society in regard to the use of his resources.

On the other hand, range management is much broader than ranch management. In range management the problems of use of the range resource in the public interest are considered. Under this definition, the range resource extends beyond the interests of the individual ranchman and is considered as one of the basic resources of the nation.

The goals of range resource use under the concept of range management given above are essentially the goals of society, which do not necessarily coincide with

those of the individual ranchman and in fact may be in conflict with them. Society measures the returns from the range resource in terms of the social benefits over a long period of time. These benefits include such items as watershed development, wildlife development, recreation development, flood prevention, mineral development, and regional economic development. Decisions must be made under this concept of range management that will develop and implement land use programs for periods of as much as 50 years. Managing resources for a 50 year period may not be in the interests of ranchmen whose planning period is often much shorter, say less than 10 years.

Why Management

Management largely involves the making of decisions about the allocation of resources for production. Decisions may be made by the individual ranchman or by a special act district, government agency, or political subdivision. The types of production involved here may include livestock, timber, wildlife, recreation, water, and other aspects of multiple use of land. From the standpoint of ranch management, decisions are limited primarily to livestock production. In the case of range management, decisions involve all of the uses of the land resource that are known or that may develop.

Management is necessary because of the unpredictability of production and market conditions. If soil, climatic, and vegetative conditions were the same every year and if prices did not fluctuate, and if no other factors changed from year to year, there would be little need for management. Perfect production plans could be developed and adopted in such a changeless world. One way of ranch organization or one method of the use of the range resource would always be the

correct one. For instance, a young ranchman would have the benefit of the previous experience, and there would be only minute changes, if any at all, that would be profitable for him to make. He would make no changes in organization, operation, buying, selling, or financing. His role would be confined to the task of carrying out decisions which have already been made—often far in the past. However, such a state does not exist, and a constantly changing world gives rise to uncertainty of which there are several sources: (1) price fluctuations, (2) production variations closely related to the amounts and distribution of precipitation and other climatic irregularities, (3) government policy and decisions of legislators, (4) actions of people with whom business is carried on, and (5) uncertainty of sickness, injury, or death. The ranch manager is concerned with this last problem to a much greater extent than the government agent managing public land.

Types of Management Decisions

In an uncertain world, decisions must be made by ranch managers and officials of government agencies who are charged with the responsibility of range resources. For simplification one can examine the types of decisions faced by the ranch manager and the types faced by a state or federal land management agency. The ranch manager faces a series of decisions.

First, he must decide whether to produce cattle, sheep, goats, wildlife, or other products of rangeland. If he chooses cattle, does he want his resources devoted to steers, cow and calf, or an all aged herd? If he chooses sheep, does he want the ranch devoted to the production of wool, lambs, or some combination? He must also decide whether to produce cattle, sheep, and goats. He must determine

if the wildlife resource will return enough to him to justify expenditures for care and management.

Second, he must decide how much land, labor, and capital are to be employed, and at what level of production.

Third, he must choose the best practices for livestock and explore fully the possibilities of substitution of one production material for the other. In the winter ration, can hay be substituted for grain to obtain a cheaper ration? Where grain is available, can it be substituted profitably for grazing with creep feeding?

Fourth, he must be concerned with the best organization to be worked out for a given set of resources. This question involves cost advantages of livestock enterprises when they are operated on different scales.

Fifth, he must answer questions relative to the amounts of fencing, water supply development, corrals, and buildings necessary to secure the desired production.

Sixth, he must time his production activities in order to take advantage of existing resources and anticipated market conditions.

Seventh, he must be especially concerned with the kind of conservation program which will maintain and improve the range resource for present and future production.

Most of these decisions are made by the ranchman with a view of his needs of the present and of the immediate future. According to definitions previously presented—these are decisions of ranch management.

The land management agencies of state and federal governments face decisions of a broader nature concerning the multiple uses of rangeland in the interests of society. Some agencies *make* decisions affecting the production process, while others *influence* management decisions. For

example, the Soil Conservation Service and soil conservation districts do not make decisions in so far as the individual ranchman is concerned. They present to him what is considered the best alternatives for safe land use that they are able to develop. Unless land use regulations are in effect within the district, the group cannot actually make the decision. This is left to the individual. On the other hand, certain agencies, such as the Forest Service or Bureau of Land Management, make decisions affecting range use. These agencies actually control the kind and intensity of range use. They issue grazing permits, determine seasons of use and intensities of use, and the ranchman abides by the decisions they have made.

The agency may be in a position to make or to influence decisions—in either case the types of decisions are essentially the same and are embodied in use of the land resource. They must decide what to produce from rangeland and how this production should be performed. The degree of emphasis to be placed upon grazing by livestock, timber production, wildlife, recreation, and water resource development is of prime importance. This also includes numerous decisions involving what combinations and intensities of these products to produce. Most of these decisions are concerned with the level of conservation of range resources and are posed in the framework of the public interest.

Steps in Management

In order to make decisions in an uncertain environment concerning the use of range resources, both the state or federal land management agency and the ranch manager perform definite steps leading toward the action of management. Here management is equated with the decision making process. One writer has identified these steps as: (1) formulation of expecta-

tions of prices, yields, and production for the future; (2) formulation of a plan to meet price, yield, and production expectations; (3) putting the plan into effect; and (4) bearing the consequences of plans (Heady and Jensen, 1954). Another author lists these steps as: (1) observing and conceiving ideas; (2) analyzing with further observations; (3) making decisions on the basis of analysis; (4) taking action; and (5) accepting responsibilities (Bradford and Johnson, 1953). Both of these more nearly describe the steps taken by the ranch manager than those taken by the land management agency. In order to more fully illustrate the differences in ranch management and range management, it would be advantageous to list the steps in this manner in order to more readily identify both public and private interests: (1) determination of goals, (2) formulation of expectations, (3) formulation of a plan to meet expectations and to achieve the goals, (4) initiation and completion of the plan, and (5) evaluation of the results of plans for use in the formulation of new expectations and plans. The step of bearing the consequences of plans is viewed here as being a passive part of management and not necessarily a part of the management process.

Let us examine these steps in management and the role the ranch manager and the range technician representing the agency or organization play as they perform these steps.

The first step of management, which in our case here is the formulation of goals, serves to illustrate again the difference between ranch management and range management. The goals of the public are expressed in laws usually aimed at conserving range resources for the foreseeable future. Sustained forage production for all its multiple uses is a part of this goal. The ranch manager is primarily in-

terested in achieving the goal of maximum satisfaction for the time period of his interests. This period of time is a relatively shorter period of time than that of the public. Maximum satisfaction for the individual may come in the form of maximization of income, reduction of risk, minimization of losses, or enjoyment of ranch life. For this reason, the goals of the ranch manager or those determined by the land agency greatly influence the decisions made.

Formulation of expectations, the second step in management, comes into focus after goals have been determined. Here the ranch manager estimates what prices to expect through various periods during the coming year and possibly into subsequent years. He estimates what effect climatic conditions are likely to have on various courses of action. Also, he determines what the production possibilities are from livestock, timber, wildlife, and other uses.

The public land agency visualizes the production possibilities from all the aspects of range use and attempts to determine what effects these various uses have on the range resource itself now and in the future.

One individual or one group cannot possibly formulate all these expectations from within its own limits of knowledge. Other than from past experience, which plays an important part in this step of management, agencies or individuals depend on information from various government and private agencies, and other individuals. For instance, aid in formulating price expectations may come from the USDA or Agricultural Extension Service. Response from grazing by various combinations and intensities by several classes of livestock, competitive status of big game and livestock, results of timber stand improvement and types of cutting and their effects on other aspects of range,

and numerous other relationships may be determined through research at the State Experiment Stations. Soils mapping, range surveys and estimated carrying capacities, degrees and seasons of use, may be presented by the Soil Conservation Service, Forest Service, Bureau of Land Management, and other public agencies. Sales representatives and industrial and business relations groups also may provide a wide range of technical information of use in this step of management.

The third step in management is the formulation of a plan to meet expectations. In this process, alternative courses of action are compared one with another in the light of the goals developed in the first step. This adopted plan may be specific and formally written up including range survey maps of site and condition classes, carrying capacities and seasons of use for various pastures, noting special treatment areas for increased forage production, proposed methods and dates of practices such as brush control, reseeding, and deferment. Or the plan may be a series of budgets or estimates used in attempting to arrive at the costs and anticipated returns of various livestock and range production and improvement practices.

The public agency, such as the Forest Service, Bureau of Land Management, or other agencies, plans the way the range resource will be used within the limits set by the legislature. Within this framework the individual ranchman can then develop a plan for that portion of the range resource he has under his control. Where the agency has no control over range use, it can influence decisions made concerning range use through persuasion and education. The Soil Conservation Service is an example of the use of these techniques. The range technician offers alternatives to the ranch

manager who then develops the plan. Likewise, the county agent working in the Farm and Home Development Program presents alternatives, and the manager develops the plan on the basis of choices that he makes.

No matter how detailed and exact plans are, they are of little value unless put into action. This is the fourth step in management. At this stage, the public agency sets forth their land use regulations in accordance with the public goals. The agency opens or closes land for grazing, and allows approved timber cutting, hunting, fishing, recreation, or mineral development. In the case of privately owned land, government agencies provide technical and financial assistance in an effort to induce ranchmen to carry out range improvement practices which are in line with their goals as well as those of public interest.

The last step of management is the evaluation of the results of plans for use in the formulation of new expectations. Actually this is the link in the chain which completes the management cycle and provides the flexibility necessary for success. Evaluation may begin before a production period has been completed and most certainly afterwards. Attempts are made to find out what factors may be attributable to the success or failure of plans. Perhaps minor adjustments will insure success in forthcoming

plans by either the range technician representing the land management agency or the ranch manager.

The Role of the Range Technician

The role of the range technician is relatively clear in the cases where his agency makes decisions about the use of range land. However, it is not as clear where he is involved in suggesting a course of action to ranchmen. We have indicated that in this role a range technician furnishes technical information concerning soils, range conditions, and alternative livestock enterprises, *etc.*

Where the range technician does make suggestions to ranchmen, he should remember that he does not bear the consequences of a course of action. The technician will not make any money if the suggested plan is a good one, nor will he lose any money if the plan is a bad one. Thus, it is not his job to make decisions for the ranchman, but to present alternatives.

Perhaps too often, technicians present ranchmen with highly developed plans based on considerable research and experience for a specific purpose. This plan may have the goal of achieving maximum conservation, but ignores the ranchman's goal of a high level of income in the next few years. Even if the ranch-

man's goal is achievement of maximum conservation, he will still need some help in carrying the plan out. The range technician, thus, can get the job of conservation done better if he knows the functions of management and knows his position in relation to them.

We feel that the range technician who expects to work in the management or research phases of range or ranch management, can obtain a better understanding of the steps in management with more training in economics and other social sciences while in college or on the job. All of his excellent training in range techniques may not be put to full use unless he has the skills and knowledge necessary to assist ranchmen to do a better job of managing their own ranch.

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Booklet on Water Released

"The Wonder of Water"—a cartoon-type presentation in four colors, designed to tell the story of upstream watershed protection, has just been released by the Soil Conservation Society of America. A special committee headed by HARPER SIMMS developed the publication.

The 16-page booklet is about a mythical community—Midvale—suffering first from drouth and later from flood. The water problems of the community were solved by the small watershed approach with farm and city people, adults and students, participating.

The booklet is available by sale to local business firms, industries, and other organizations and is designed to allow their use on the back page for a message. Information on costs of the booklets may be obtained by writing to the Soil Conservation Society of America, 838 Fifth Avenue, Des Moines, Iowa.
