

Rangeland Resources and Management— A Report to the USDA Joint Council

The USDA Joint Council on Food and Agricultural Sciences heard a discussion on rangeland resources and management problems of the world, with particular emphasis on the United States during its February 28, 1985, meeting. The purposes of the Joint Council are to provide leadership and coordination in research, Extension, and higher education programs offered by USDA agencies or cooperators. Presentations were made by SRM President Ed McKinnon, First Vice President Fee Busby, Board Member Dick Whetsell, and Executive Vice President Pete Jackson. Joint Council and SRM members Al Young and Andy Fischbach served, respectively, as moderator of the program and responder for the Council. SRM Second Vice President Jack Miller, Washington SRM Representative Clair Hendee, and a number of other SRM members were also present for the Joint Council presentation. The major thrust of the presentations were (1) the definition of rangeland as it relates to the extent, diversity, and multiple use values of the world's rangeland resources and (2) the contributions these lands make to the food supply and quality of life of the U.S. and world.

Extent, Characteristics, and Importance of Rangelands

Rangeland ecosystems (including native, but intensively managed pastures and grazeable forestland) cover about 55 percent of the land area of the United States. The largest areas are in the Great Plains, Southeastern and Western regions with some areas of rangeland occurring in every state. On a worldwide basis, range is the largest land resource, encompassing about 50 percent of the surface area of the earth. Besides the U.S., other countries or areas of the world with large expanses of rangeland are Canada, Mexico, South America, the Middle East, Africa, Australia, Russia and China.

The principal characteristics of rangelands are (1) a natural vegetation of predominantly grasses, grass-like plants, herbs and shrubs; (2) an evolution closely associated with grazing in the precivilization state; and (3) a suitability for ecological management rather than agronomic management. Rangeland includes the world's natural grasslands, savannas, shrublands, most deserts, tundra, alpine communities, coastal marshes and wet meadows. Open forest lands with an understory or periodic cover of herbaceous or shrubby vegetation are often managed as rangeland. Seeded lands which are managed by ecological principles are also properly classified as rangeland.

Range resources and values include both tangible and intangible products, such as grazeable forage, wildlife habitat, water, minerals, energy supplies, some wood products, germ plasm for domestication and breeding and ecological study areas of natural systems. The dominant use of range-

land in most of the world is for basic food and fiber production. Most of the world's domestic cattle, sheep, goats, camels, horses and donkeys spend a large part of their lives on rangeland providing a low cost, energy efficient means of converting plant material (that would otherwise go unused by man) into meat, milk, blood, leather, wool, mohair, bone and other products, as well as playing a valuable role as "beasts of burden" in developing countries.

Wild animals are another valuable world resource that contribute to the food supply of many cultures, provide recreational opportunities for many individuals, provide a source of germ plasm for animal breeding and domestication and otherwise contribute to the physical and mental well-being of mankind. Most wild animals live on range and grazeable forestlands. The quality of wildlife populations is thus dependent on these two broad categories of land. Quality wildlife habitat is an important goal of range management.

The value of rangelands as a source of water is of worldwide importance. Vast quantities of precipitation annually fall on these lands. Much of this water infiltrates the soil and is either used for plant growth, stored in underground aquifers, or flows into a stream system through springs or seeps. However, some of the precipitation does not infiltrate the soil, but runs off over the surface of the soil causing erosion. The amount of runoff and erosion is dependent on how rapidly the precipitation occurs and the condition of the soil surface (including plant cover). Accelerated soil erosion causes on-site reduction of plant growth capacity and off-site siltation and sedimentation. Proper rangeland watershed management to insure soil and water conservation, as well as sustained productivity of the land, is another of the important goals of proper range management.

The recreational use and values of rangelands are becoming more important, particularly to people in well-developed countries such as the U.S., Canada and Australia. Rangelands provide clean air, open space, silence, solitude and "natural beauty", all of which are considered by man to be desirable environmental attributes. Rangelands are used for such recreational activities as hunting, fishing, horseback riding, hiking, back-packing, off-road vehicle driving, camping, outdoor photography, rock-hounding, bird watching and plant collecting. In addition to the "quality of life" benefits provided by recreational pursuits, there is considerable economic value associated with these recreational uses. The "early American heritage" associated with rangelands has great potential for tourist value, i.e., the use of private ranch homes as bed and breakfast establishments. Rangelands may be able to help meet the need for "profitability in agriculture" through marketing recreational values.

Rangeland Research Programs

In both developed and developing countries, livestock

grazing, wildlife habitat, water quantity and quality and recreation are likely to remain the most important uses of rangeland. The demands for meat, milk, blood, and fiber products provided by rangeland grazing animals are steadily increasing in other parts of the world. There are also forces at work in the U.S. which will increase the demand for forage. For example, a likely reduction in the amount of grain used in feedlots will require that more forage be available to finish animals on the range. Evidence indicates that grass-fed lean meat in the diet causes fewer health problems than feedlot finished, fat meat. Another example is the fossil fuel energy efficiency associated with range livestock production as compared to the feedlot production. All of these factors lead to the conclusion that research aimed at maintaining or improving livestock production on the rangelands of the U.S. and the other countries of the world must be expanded. Biotechnology research offers great opportunities to improve production efficiency, as well as quantity.

Livestock grazing has been described as competitive with, if not destructive to, wildlife and recreational uses of the land by some individuals and organizations. Livestock grazing use has been reduced or eliminated on some areas of public lands, due to unique wildlife or recreational values. Continued reallocation of U.S. public and private rangeland resources is expected to meet society's changing and growing demands for wildlife and recreational uses which will, in turn, mean less available land for livestock grazing use. Research to improve the management and increase productivity of the remaining lands available for livestock production will be needed to insure a quality food and fiber supply. Biological and social research to improve our ability to manage livestock, wildlife, and recreational uses and users could solve many of the existing and anticipated conflicts and problems, thus allowing the nation to better meet a variety of economic and social goals. This same need for research will exist in many parts of the world as other societies grapple with problems similar to those we now face.

The increased demands predicted for rangelands will increase the need for improved watershed management programs. Water is a resource upon which man relies for survival and, all too often, man's survival is threatened because of too much (floods) or too little (drought) water. Watershed soil, plant and water management, as well as conservation practices, cannot solve all of the water supply problems faced in the world. However, in many instances, proper practices can buffer the effects by increasing the soil storage of water while reducing runoff and erosion. Research to determine the effect of various rangeland uses on watershed values and the development of management practices to properly balance these uses and watershed conditions is critical to insuring a quality water supply for many areas of the U.S. and world.

Many other basic and applied research questions related to rangeland management need to be addressed to insure that proper management and use of rangeland ecosystems continues in anticipation of societal demands. Some of the research needs will be at the cutting edge of plant and animal biotechnology, including the understanding of the function and interaction of rangeland ecosystem components. Other

research will be directed to the social sciences and aimed at increasing the understanding and ability to manage the people who use the rangelands. Today, the availability of such a knowledge base is limited as is evidenced by the conflicts that exist between different rangeland management interest groups. Many of these conflicts are simply the result of insufficient information available to guide the parties to a reasonable conclusion.

Undergraduate Education in Rangeland Management

Considerable progress has been made in the past decade in rangeland management for undergraduate education. Improved standards to qualify for range conservationist positions with the Federal Government were implemented in 1978. These have become the standard of the profession and insure that individuals hired by a Federal Agency have well-rounded educations that include prescribed courses in range management; plant, animal and soil sciences; and rangeland related, natural resource management disciplines. These improved standards also insure that graduates at the baccalaureate level are well educated from an academic standpoint.

However, few range management undergraduates possess much "practical" experience because most have been raised in urban areas. Two common needs of students raised in these areas seems to be an opportunity to begin developing a "feel for the land" and an understanding of people with rural backgrounds. One solution to the needs in range management education is an internship program that will allow students to develop this background along with other needed practical skills. Such internships, however, must incorporate enough flexibility for the educational programs to be developed to meet the unique needs and career objectives of the individual students.

In general, range education programs need to incorporate instruction in practical law, economics, government relations and development of the environmental impact statements. Range management graduates also need strong training in communication skills, public speaking, debate and negotiation. The expansion of these education programs will prepare range management graduates as professional representatives who will be able to effectively deal with all aspects of rangeland management.

Extension and Continuing Education Programs in Rangeland Management

Federal, State, and County employees of the Extension Service have important responsibilities in the area of continuing education for rangeland management. The audiences utilizing such educational programs are farmers and ranchers, rangeland managers and administrators employed by Governmental Agencies, wildlife and watershed managers, recreationists, environmental organizations, youth groups and the general public.

In general, the various levels of the Extension Service are staffed to try to meet the educational needs of farmers and ranchers. However, the pressure from the general public for simultaneous, increased rangeland use and improved management has increased the demand for range management

Extension educational programs for users of all kinds. Such programs are more successful when the various interest groups are involved in the same educational programs. For example, the Coordinated Resource Management and Stewardship Programs have proven to be effective approaches to Extension education and have resulted in cooperative range management problem resolution, as well as understanding among the diverse interest groups. Extension educators are going to be faced with more demands for education programs that emphasize integrated, coordinated, or holistic approaches to rangeland management.

Most federal and state agencies conduct in-house continuing education programs for rangeland, wildlife and watershed managers. In addition, universities and private organizations offer shortcourses, workshops and symposiums that help meet continuing education needs. However, no continuing education and standard or certification requirement exists for practicing range managers; therefore, there is no consistency from one range manager to another as to the type or

amount of in-service training they receive. It has been proposed that one way to eliminate the problem of inconsistency is to establish a "practical internship," similar to that previously discussed as a need of the undergraduate student. Leadership in establishing such a program must be provided by the major Federal Agencies (Forest Service, Soil Conservation Service, Bureau of Land Management, and Bureau of Indian Affairs) who employ range conservationists or who contract with range consultants and who can thus insure a more uniform professional in range management.

Summary

Rangelands provide diverse products and values that are important to the population of the world. Demands for these products and values, as discussed, are steadily increasing, yet the land base available to meet the needs is constantly shrinking. Rangeland research, Extension education and strengthened undergraduate education programs need to be expanded to meet these needs. ●

Is Wildfire Really Bad?

Lee E. Hughes

Wildfire! Fire! These are terms loaded with emotion. Except for a crackling campfire or wood burning in the fireplace, fire stirs fear. Prairie fire, forest fires, shipboard fires, and house fires can mean death and financial ruin. Indeed, eternal fire is supposedly maintained at white hot temperatures to rid the universe of errant souls.

Fire has picked up a bad reputation since ancient Prometheus stole it from heaven and gave it to man. Perhaps Prometheus, with hindsight, wishes he had not delegated such responsibility to man.

Astronomers tell us our universe was born of the Big Bang, which was laced with fire. Anthropologists tell us what a major human breakthrough was the discovery of fire. Man then could warm himself and cook foodstuffs. We all like to be warm and warm our food. Fire is good. Fire used properly is a natural bonanza.

In some areas and under many circumstances, rangeland fire is beneficial. At other times, fire is a menace. Until recently, rangeland fires have been considered harmful, regardless of circumstances, and many public land management agencies at all government levels have had a policy of extinguishing all of them as quickly as possible.

As a result of this policy, fires were being suppressed everywhere, even to such extremes as in the middle of the tundra miles from any village or on some sagebrush hillside 30 miles from the nearest habitation. I could cite many other examples of expensive fire suppression in remote brushlands—suppression that made no ecological, economic, or protective sense. On the other hand, in densely populated

areas or areas with valuable crops (timber, grains, grass), and private holdings, fire protection has and continues to make good sense in all aspects.

Although agencies managing remote range and brushlands have begun to change their fire suppression policies and allow fires to burn, this new policy has not come easy. These agencies have within their jurisdictions large fire-fighting forces with modern equipment that move quickly on fire. With large areas being placed under modified (let burn) suppression, fire fighters feel threatened and often react with

