

# Range Management Education: Future Agency/Industry Needs

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## Editor's Note:

This paper was presented as part of a panel on Range Management Education sponsored by the Society for Range Management and the RSEC (Range Science Education Council) at the 1992 SRM Annual Meeting in Spokane, Washington.

The contribution of rangelands to the earth's life support system and economic welfare of its people is tremendous. As the demand on rangeland resources escalates with increasing population pressure, the need for sustainable, multiple use management will become even stronger. Social, economic, and political pressures will continue to bring about changes in range resource use. Non-traditional uses of rangelands and societal demands for a safe environment dictate a more interdisciplinary approach to resource management. The complexity of natural resource management on public and private land will require the range manager to have both biological knowledge and integrative skills. Information technologies, which aid the systems approach to natural resource management, will be essential tools of range resource managers in the future. Range management educators must react to this need with the right curricula for graduates and continuing education opportunities for post graduates.

## Socio-Economic-Political Issues

A recent report by the faculty of the Department of Rangeland Ecology and Management of Texas A&M University (1991) identified several socio-economic-political issues impacting rangelands and rangeland resource management. This section draws extensively from that report.

## Global Trends

As we approach the twenty-first century, business survival in the United States and other highly developed countries will depend on their ability to compete globally in specialized markets with high cash value products.

Three general categories of work are emerging with the global economy: (1) tasks that are repetitive and/or focus on mass production, (2) provision of person-to-person services; and (3) "symbolic analytical services" which

focus on problem solving, problem identifying and strategic brokering. The health of the United States economy will be highly dependent on our ability to compete in each of these three areas, but particularly to produce symbolic analysts. The implication to range management education is a greater demand for individuals who can analyze complex problems, develop alternative solutions and organize action to implement change. Rangelands will continue to produce livestock for human food (mass production), but will also be called on to provide recreational opportunities (person-to-person services), water, and numerous environmental benefits. Providing the mix will require problem identification, problem solving, and strategic brokering.

Rangeland-oriented businesses will develop a greater diversity of enterprises with greater emphasis on non-traditional production systems. American ranchers will increasingly find greater competition from countries which can produce livestock products at lower prices. Corporate users of rangelands are expected to increase and become multi-national in structure. The complexity of the business environment imposed by such organization will place a greater demand for rangeland management specialists with integrative skills.

Emerging global environmental issues will increase the need for expertise in environmental law. International conflict over sovereign rights and global rights will approach those similar to individual property rights and societal imposition of law that over reaches those rights, e.g., the Endangered Species Act.

## National Trends

Environmental and natural resource agencies are being challenged to provide more policy assessment and to focus more on integrated, regional projects. Policy assessment and integrated projects will require use of organized knowledge bases. This new role will increase the need for broader technical skills/system analyst capability among agency personnel. These increased needs for skills and training will result in more agency people returning to universities for graduate studies and a greater demand for agency sponsored continuing education courses. This, plus the demand from private organizations, should increase the demand for ecological research and impact assessment on both the national and global scale.

The trend of more public involvement in the use of private rangeland will continue. Private rangeland is

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increasingly being used for non-traditional enterprises such as native and exotic wildlife production and other recreational uses. Increasing scarcity of communal resources, such as water, will result in more pressure on range managers to limit adverse impact on the environment. Requirements for "conservation compliance" programs designed to encourage conservation and public concern for preservation of "endangered species" and biodiversity are central issues attracting public attention to privately owned rangelands. Rangeland professionals will increasingly find themselves involved as technical experts and/or mediators between public and private interests.

The controversy over use of public lands will accelerate. All of the private land issues mentioned above are applicable to public lands. While conservation compliance is a term not normally applied to public land use, public land users are under increasing pressure to meet conservation compliance-like requirements. In addition livestock grazing and other commercial uses of public lands will continue to be challenged. Agencies charged with managing these public rangelands will have to adjust to management of rangelands for alternative uses. The result will be a new type of range management specialist in federal agencies. The current review and revision of the Office of Personnel Management (OPM) Range Conservationist series identifies these trends.

Curricula in institutions of higher learning will have to focus more on components of systems thinking to produce the symbolic analyst for the diversity of range professional jobs. Higher education's approach to teaching natural resource management will require considerable restructuring to integrate social, economic and biological knowledge with a systems perspective. Examples are the need for problem solving and conflict resolution subject matter early in undergraduate curricula and the development of MBA type masters degrees in natural resources management.

### Demographic Influences

Demographic changes are putting pressure on rangeland worldwide and particularly here in the United States. For example, in 1990 over fifty percent of the population of Texas lived in six counties. The average rancher was fifty-eight years of age and had been ranching for twenty-seven years. Fifty percent of them did not know if their children would operate the family ranch after their retirement (Hanselka et al. 1990).

When ranches sell, they are either selling to other ranch owners or being broken into ranchettes and sold to non-ranchers. This will result in a few large, but many smaller units; an increase in absentee landlords; and new, often inexperienced, land-owners and managers. Fifty-two percent of ranchers in Texas operate less than 640 acres while a few ranches are getting larger. Most Texas ranches are small and getting smaller. Smaller land-owners and managers will have different land management objectives, and thus need different technologies than larger operators.

As our population shifts from farms and ranches to the city, congressional redistricting to reflect population centers will result in fewer voices for rural rangeland areas. Urban populations are already influencing range management practices on public and private lands. The range profession of the future may well look upon the urban public as one of its clientele.

### Trends in Ecological Sciences Staffing for Technical Assistance on Private Lands

An in-house analysis of staffing of selected ecological sciences by the Soil Conservation Service (SCS), the agency with primary responsibility for providing technical assistance to private land owners, revealed several disturbing trends in the hiring of ecological science related specialties (SCS, USDA 1991 b).

1. In 1980 there were 114 wildlife biologists within the SCS; in 1990 there were 85, a decrease of 26%. There were nine states with no biologists.
2. In 1980 there were 73 foresters within the SCS. This number declined 37% to 46 in 1990.
3. The number of agronomists fluctuated, but decreased from 94 to 84 between 1980 and 1990.
4. Range conservationist positions declined from 308 in 1980 to 240 in 1990, a 22% decrease.
5. Recreation specialist positions decreased from 6 in 1980 to one in the national headquarters in 1991. This is quite alarming in that the Soil Conservation Service has been given the leadership within the USDA in providing technical recreation assistance to private land owners.

All ecological sciences staffing has declined in the last 10 years. Range actually declined the least with 22%.

At the same time the total number of full-time SCS employees declined only 7%. Unfortunately, many of the remaining ecological science specialists have been assigned collateral duties in areas, such as agronomy, which are often unrelated to their technical training.

Gradual reduction of livestock grazing on public land is increasing grazing pressure on private lands. This increases the need for technical assistance to address growing complexity of grazing resource management. Assisting cooperators with not only range but pasture and haylands resource management systems represents an increasing technical demand by Soil Conservation Service. The future will demand that the SCS have an adequate number of range and pasture specialists in field and area offices. These individuals will have to deal with many of the current national initiatives recognized as having high priority, such as water quality, air quality, aquatic ecosystems, drought mitigation, riparian area management, and global climate change. Technical assistant personnel will have to have a higher level of technical and computer expertise on range, pasture, and hayland assistance as field offices upgrade their delivery system into a fully automated computerized environment.

## Non-Traditional Technologies

The old division of jobs into foresters, agronomists, pasture, and range people is changing. Treating cropland separately from pastureland and hayland separately from other "lands" is a simplistic view of resource management. Although it is still possible to carve the landscape into its parts for remedial actions, land can no longer be managed as a patch work of independent and autonomous units. Societal concerns for erosion, water quality, water quantity, and "biological diversity" have changed the setting within which management decisions must be made.

The need to address different lands in a landscape perspective and land management planning in a holistic way means that range management specialists must have an expanded array of credentials. For example, a SCS staffing analysis (SCS 1991 b) gave the following examples of this need:

1. SCS biologist personnel will include people with expertise in wildlife, fisheries, fresh water aquatic ecology, and marine ecology.
2. Agronomist positions will need to include persons trained in agronomy, horticulture, agroecology, and crop physiology.
3. Forestry personnel will include in their ranks foresters, agroforesters, and forest ecologists.
4. Range conservationist personnel will include range ecologist, animal ecologist, and grassland specialists.

The report also says that SCS will need to hire persons who have academic training in plant physiology, systems ecology, landscape ecology, water chemistry, and terrestrial plant ecology.

All of these specialists must be able to understand and address the inter-relationships of natural and agricultural ecosystems. The complexities of planning which can address economics, erosion management, water quality, environmental responsibility, and social acceptability are bringing increasing pressure to bear on the SCS to incorporate these non-traditional specialists in increasing numbers. Strict adherence to separation of specialties is not in keeping with the demands in the future. Administrators of Range management programs need to take notice and revise curricula, courses and emphases.

## Public Land Management Trends

Public interest and concern for the environment and demographic changes are influencing change in public land management. The Bureau of Land Management (BLM) and Forest Service (FS) together manage the major portion of our federal lands. And, in my opinion they have done a fine job.

A recent BLM strategy document (BLM, USDI 1990) indicated that of the 170 million acres of range administered by the BLM, 36% was in "good" to "excellent condition, 36% in "fair" condition and only 16% in "poor" (the lowest percentage ever recorded). An additional 14% is unclassified. A blue ribbon panel (BLM, USDI 1991) reporting to the National Public Lands Advisory Council

drew the following conclusions:

- Management intensity and complexity have increased dramatically over the past 10 years in BLM. During the same period staffing has declined (551 Range Conservationists in 1981 to 413 in 1989 to 438 in 1991).
- The American people, Congress and BLM leadership want a more balanced approach to management under the multiple use mandate.
- Funding and staffing levels have not grown in relation to the demands for better management and increased use on BLM lands.

Sound stewardship of BLM lands depends on a highly trained professional work force.

New and efficient ways of accomplishing "resource management" to achieve management objectives must be developed and used.

These conclusions apply to the U.S. Forest Service as well. The Forest Service has reacted to changing uses and management needs of Forest Service lands by broadening the focus of range management from livestock grazing to managing vegetation for diverse uses and values. Their perception of range professional expertise needs are reflected in the development of a comprehensive continuing education program for rangeland resource management professionals. The USFS and BLM are working together to develop a continuing education program for their range professionals. The program, designed for mid-career level rangeland managers, proposes to teach four course modules as follows:

Module A - Leadership, communication, and coordination,

Module B - Rangeland policy and socio-economics,

Module C - Rangeland ecosystem management,

Module D - Responsible and responsive decision making.

The course titles and the knowledge and skills proposed to be taught under each reflect the changing role of public land managers in response to social, economic and political pressure. The program reflects far-sightedness on the part of the FS and BLM. The content of the courses should alert range management education schools as to curricula and subject matter needs.

## Soil Conservation Service Initiative

A recent program assessment by the SCS analyzed the decline in range conservationist staffing (USDA-SCS 1991a). Range conservationist positions within the SCS have declined steadily from 308 in 1980 to 240 in 1991. The commonly accepted reason was the enactment of the 1985 Security Act, placing emphasis on Conservation Reserve Program (CRP) and Conservation Compliance planning. An inverse correlation with the amount of range conservationist staff and the amount of Farm Bill activities was observed. Staffing in the SCS is now below basic critical mass of range conservationists in the field to effectively provide a basic range conservation program.

In January, 1992 the Soil Conservation Service unveiled

a "National Grazingland Conservation Initiative for Private Grazingland." It was a result of several workshops and conferences conducted by the SCS with individuals and groups that are direct and indirect recipients of SCS assistance. The initiative, directed toward all grazingland (range, improved pastures and grazeable woodlands), is intended to enhance them and inform the public of the benefits of making an investment in this national resource (SCS 1992). If successful and fully funded, it proposes that the Soil Conservation Service hire an additional 400 field-level range conservationists. The plan also calls for an additional 80 grazingland management specialists to provide assistance on the pastureland, grazeable woodlands and other non-range forage producing lands. The initiative also calls for adequately training existing and new employees.

The increased need for more range and grazing management specialists is due to the assignment to the range division of the Soil Conservation Service the responsibility for all grazingland (rangeland, pastureland and grazeable woodland). Those people working in the eastern part of the United States would need more expertise in planning and management of forages, grazing management, and ecology. Agronomists working on grazing lands in the East currently do not have the necessary ecological or grazing management expertise. This deficiency would need to be overcome by retraining current employees through continuing education courses, formal courses, or the eventual hiring of staff with the proper training.

In addition to pasture management type training for those who work in the eastern pasture and forage areas, there will be increased need for range management specialists knowledgeable in social and environmental issues of rangeland. They will need training in sociology, economics, ecology, hydrology, plant physiology, decision making and conflict resolution.

Regardless of the outcome of the SCS initiative, the integration of all grazing lands under the supervision of the range management division, will mean a gradual increase in the need for range conservationists by the Soil Conservation Service in the future. If the initiative is at least partially funded, the need for range conservationists will increase dramatically. Range management education schools must prepare for this by broadening curricula to include the need expertise and by offering continuing education courses for current range conservationists and agronomists.

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## EVP Report *(continued from page 52)*

Priority Issues to address are:

- Weak base of support for rangeland management, education and research
- Exert timely, professional leadership in issues pertaining to rangeland management and use
- Insufficient funds available to SRM to support desired program expansion.

Now I ask you: what is unclear? Is anything missing, if so what? and What editorial comments do you have? We have already received some excellent editorial comments that will be reviewed (and perhaps incorporated) at the Summer Meeting. I welcome your comments.

The Annual Meeting provides the opportunity for fellowship with old friends, new acquaintances, and other range professionals willing to share information and experiences. The Annual Meeting also draws the diversity of our international members and friends. I am frequently

reminded of and thankful for the contribution of the larger vision that our international members bring to the Society. Total registration was 1,661, which includes 75 delegates from 9 different nations. It is easy to return from the Annual Meetings physically exhausted, yet mentally stimulated by the interactions, accomplishments, and ideas of how you can do it better at next year's meeting. The Annual Meeting is essential to the psyche of the Society.

The Annual Meeting is also very important to the operation of the Denver office. Profits from the Annual Meeting have become a most important resource for carrying out SRM programs. Income from the Annual Meeting over the past few years has contributed about 10% of our total operating income, so you can see why it's very important to the operation of the Denver office. See you in Colorado Springs in 1994 at the 47th Annual Meeting.—**Bud Rumburg**, Executive Vice-President, SRM