

# Range Management Education

## V. College Training for Range Management Students: An Employer's View

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The education and training needs for a career in range management are both general and specific. In prescribing professional training for range technicians and range managers we need to recognize at least the following overall principles: (1) range management is no longer a mere trade, but a profession; (2) success in any profession dealing with natural resources depends on a thorough understanding of basic laws pertinent to biological systems; and (3) greater emphasis is now needed on science, less on the trade school approach; more on why and how things happen, less on what happens.

### Attributes of the Man

In selecting men for range management positions, I find myself looking for other attributes, in addition to the important ones of knowledge and training. While the routine questions about education, experience, marital status, military career, etc. are being asked, I find myself wondering, "Is this a man with whom I would like to work? Does he have a well-rounded personality that will enable him to deal with others? Is he aware of the world around him, and beyond his specialty of range management? What is his speaking and writing ability? His judgment, initiative, originality? His ability to grow and adapt himself to new situations?" In asking these questions in my own mind, I am well aware that a man seldom ends in the exact field of work of his

choice. But if he can grasp opportunity when it comes, and adapt to new situations, he will get along.

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### Extent of Specialization

With respect to formal training for range management, it is possible to combine effectively the fundamental sciences and professional disciplines of more than one field of work, but one must always be subordinate to the other. For example, we can develop specialists in either the field of range management or the field of animal husbandry. These specialists can have a general working knowledge of each other's fields. But we cannot make a useful half-and-half hybrid by crossing or combining equal amounts of knowledge from both fields. Somewhere in his career, the student must choose his major profession. If he is well trained, however, he will acquire sufficient grasp of numerous broad fields to know which specialists to call on when integration of different sciences is needed.

In considering the training needs of range-management students, a distinction between true specializa-

tion and broad education is useful. Sherlock Holmes may have been a "screwball," but he was a true specialist. You will remember how Watson listed his capacities. Sherlock's knowledge of literature, philosophy, and astronomy was nil. His knowledge of politics, botany, and soils was feeble, variable, or practical, depending on the use he planned to make of these fields. He became one of the world's greatest consulting detectives because his knowledge of chemistry and criminal literature, for example, was profound. He knew what he wanted and he specialized for it.

We do not expect the college graduate to be a specialist when he comes to us. If he ultimately becomes a specialist, it will be because of what he has within himself. What we hope for in the new employee is a reasonably broad perspective that will ultimately enable him to cope with any professional situation. His college preparation for this should include orientation and a general view of both his own and of related fields. At graduation time, the student is not expected to be familiar with all the professional and technical situations he will encounter in life. But he should know a great deal about the mechanics of how to find out what he needs to know.

If a college student believes that he wants to major in range management, he should start with the basic sciences and liberal arts in his first and second years. This is equivalent to the type of training received in most premedical, pre-law, prejournalism, or pre dentistry courses. The beginning of his specific training can start in the third and fourth years of college. In these last two years, he can begin to acquire training in the profession of his choice. He can also gain knowledge of the coordination that exists between major fields such as range management, animal husbandry, game management, and forestry. Any one of these may become his final specialization, if he decides to specialize.

Every young graduate should

understand that he is likely to be a victim of circumstances, or a beneficiary of opportunity, in whatever field he works. He should realize that specialization does not come with the bachelor's degree. It increases as work is done for the master's and doctorate degrees. But even these are not absolutely necessary. Breadth and depth comes with the man himself. And true specialization does not appear until the scientist becomes an "authority" in one or more phases of his chosen field through long continued investigation and accumulation of information and experience.

Possibly the best we can do with 4-year college graduates, in addition to giving them a broad orientation and a general understanding of their chosen subject and its related fields, is to help them attain knowledge that will aid them in sympathetic cooperation in joint studies or participation with workers in other fields, intelligent participation in planning courses of action, and a knowledge of the boundaries of their field of work which will enable them to recognize when they are getting out of bounds, or when others are encroaching on their field.

#### Scope of Range Management

If we keep in mind the scope of range management, we have a better basis for deciding what should be the nature of training given to range students in college. Workers

in range science administer, supervise, or perform professional or scientific work in the utilization, protection, development, and management of rangelands for the continuous production of livestock or big-game animals or both. Included in range management are such phases as range inventories, range-grazing-capacity determination, range ecology, range reseeding, big-game range habitat improvement, and range economics. Thus range management essentially is a vegetation management, attained through handling of animals and mechanical devices. Certainly, range management does not require a profound knowledge of such fields as dairy husbandry, bacteriology, anatomy, and animal diseases.

#### Curriculum Changes Desirable

In the training of range experts, it would appear, therefore, that certain changes in the average college curriculum would be desirable. The following should receive greater emphasis, or be added to the curriculum: English and journalism; more ecology; more study of experimental methods and forms of evidence; plant physiology; and more systematic botany and agronomy.

The following subjects could receive decreased emphasis, or even be omitted from the curriculum: economics (one course instead of two or three); chemistry (omit quantitative analysis and physiological chemistry); microbiology;

bacteriology; and horticulture.

The content of some courses could profitably be changed. In English, for example, more emphasis is needed on letter writing, report writing, radio talks, television, forms of scientific exposition, and writing the popular article. Actual materials should be used in courses of instruction, and less emphasis should be placed on textbook examples. In mathematics, if the students were taught to do simple arithmetic, it would be useful in their life's work. They seldom need the furbelows that go with mathematics courses.

Finally, some college curricula are notably lacking in broad coverage of conservation and resource management. Students in range management could profit by taking survey courses which give the essentials of animal husbandry; animal husbandry students could profit from courses that survey the field of range management. *All students could profit from courses in how to think.* Too few of us understand the scientific method and the principles of reasoning based on constructive and destructive argument.

The only hope for modern resource managers to cope with the wide problems of today is to base their actions on fundamentals that include a proper balance of basic sciences, humanities, and the techniques of their professions. The college can do much to achieve this balance in the men they train.

We look for these qualities in the men we employ.

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### CALL FOR PAPERS FOR THE 1958 ANNUAL MEETING

Members who wish to present papers at the next annual meeting of the Society in Phoenix, Arizona, January 29-31, 1958, are invited to offer titles now.

Approximately 200-word abstracts should reach the Program Chairman as soon as possible, but not later than July 15, 1957, for consideration by the Program Committee. Papers on plant control, range reseeding, management, and technical problems of range management are especially desired. Send your titles and abstracts to: HUNSON G. REYNOLDS, Rocky Mountain Forest and Range Experiment Station, 107 Agriculture Building, Arizona State College, Tempe, Arizona.